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ABSTRACT

This publication presents the papers and discussion highlights of an international colloquium on new communications technologies which was held to provide a forum for debate on economic, political and social impacts of new communication technologies by western representatives from media, academia, politics, and industry. The following papers were presented: (1) "Public Broadcasting--A Model for the Future?" (Richard Becker); (2) "Satellite Systems in the Western World--the U.S. Example" (Bert Cowlan); (3) "UNISPACE 82--A Successful Forum" (Lee Love); (4) "The PTTS and the New Technologies" (Dietrich Elias); (5) "The Impact of New Communication Technologies on the Third World" (Herbert J. Schiller); (6) "New Technologies and the Third World--A 'Distribution of Social Benefits'?" (Cees Hamelink); (7) "The New Communication Technologies and Research" (James D. Halloran); (8) "New Technologies and Their Impact on Relationships between Industrialized Countries" (Bernard Blin); (9) "Computers in Telecommunications Services" (Thilo Pohlert); (10) "The Electronic Technologies Markets in the Eighties" (Karl Joseph Frensch); (11) "Transnational Data Flow--A German Viewpoint" (Hans-Dieter Klee); (12) "Broadcasting Unions in the Future--Sports and News" (Werner Schneider); (13) "Communication Satellites--A Third World Perspective" (Neville D. Jayaweera); and (14) "Advertising and the Creation of Global Markets: The Role of the New Communication Technologies" (Noreene Janus). Also provided are introductory remarks by Reinhard Keune, a welcoming address by E. J. Kerbusch, an agenda for the colloquium, and a list of participants. (JB)

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COMMUNICATION MANUAL

New Communication Technologies and their Impact on Western Industrialized Countries

Summery Report of a Colloquium held in Bonn,
Federal Republic of Germany
on 17 - 19 December, 1982

FRIEDRICH-EBERT-STIFTUNG

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FOREWORD

This publication tries to summerize and present the papers and discussion highlights of an informal colloquium convened by the Friedrich-Ebert-Stiftung in Bonn shortly before the end of 1982. The intention of the organizers was to provide a forum for a debate of Western representatives from media, academia, politics and industry on economic, political and social impacts of new communication technologies. The consequences of progress in this field should be discussed with reference to Western industrialized countries and their mutual relationships.

However, it became evident very soon that the North-South dimension of the topic could not be neglected. We at FES consider this an additional asset of the Colloquium which added tremendously to our kowledge and helped sharpening our eyes and wicking our ears for the benefit of our partners in the Third World.

While we had to convene the meeting on an unusually and unfriendly short notice we are proud of being foregiven for this. The presence of so many renowned personalities from Australia, Japan, the US, Canada and Western Europe who dropped whatever important they were doing to join the Colloquium gave ample proof to the fact that they were bearing with us and found the topic sufficiently attractive and challenging.

We would like, therefore, first of all, to acknowledge gratefully their eagerness to come, their concern and involvement shown and their constructive attitute in fighting over controversial issues.

Further acknowledgements go to the able assistant who struggled with the tapes for transcription, to Amic in Singapore for its help in editing and printing of this report and, especially, to Jörg Becker and Verena Metze-Mangold who hindly provided us with additional papers of high relevance as reference material.

Reinhard Keune

Bonn, October 1983

INTRODUCTORY REMARKS

REINHARD KEUNE

A member of the Siemens Board of Directors told me the other day, and there was some pride in his voice - : "You see, we are the only sector left in our economy that shows growth and has the most exciting prospects for the future."

On the other hand, there was no pride and optimism when the management of AEG-Telefunken told a German and international TV audience that one of the finest and oldest manufactures of electronics was practically bankrupt.

And there were no exciting prospects at all for the grand old man of the German electronics industry, Max Grundig, when he told the press that he must sell out part of his industrial empire to the French Thompson-Brandt group.

So, it's whose future we should discuss: That of the optimistic Siemens man or that of a depressed Max Grundig?

When Marshal McLuhan told a surprised world that it was in the process of shrinking down to a "global village" due to modern communications he probably found his most ardent followers in Germany. Having escaped the spiritual imprisonment of the Nazi regime the Germans wanted to be the most liberal and democratic partners in a global communication network.

At the political level Helsinki and the fight for "Basket 3" gave ample proof to this German attitude.

But, when some years ago the tiny neighbour Luxembourg announced the launching of a commerical TV satellite with most of Germany and France under its footprint, Chancellor Helmut Schmidt and President Giscard d'Estaing got in touch and Luxembourg was sandwiched between them.

The average West German who does not live on the Swiss or Austrian or GDR border has access to three television channels - in the eyes of our American friends certainly a terribly narrow choice.

Nevertheless, the former Chancellor Helmut Schmidt pleaded in a much debated speech for one television-free evening per week. In contrast to this, the new conservative German administration - among its first decisions - paved the way for large-scale broadband systems even at the expense of using the probably outdated technology of copper coacial cables because full industrial capacity for optical fiber is not yet available.

Thus we are confronted with all sorts of strange contradictions.

Recently there have been meetings of professionals also in Germany - the last one was organised only shortly ago by the renowned Hans-Bredow-Institute in Hamburg - involving specialists in communication and dealing with new information technologies.

The German Broadcasting Networks and other professional bodies, newspaper publishers, large publishing enterprises and the electronic industry in Germnay are aware of the urgency to come to grips with these new developments. Political parties, trade unions and other groups of society fight for clear and future-oriented views and strategies.

We feel, however, that the fascination of technology continues to prevail and the consequences on a large variety of important sectors of our political, economic, social and cultural life and our relationship

to others in these fields are widely under-estimated. To reduce the problem to the question whether new technologies are job-killers or the only means of salvaging Western economies or whether there is just a competition of brains and management to decide between the Pacific or the Atlantic basin, is in our eyes a too simplistic approach.

We at the Friedrich-Ebert-Foundation suffer from this state of affairs in a double way: on one hand as politically-minded citizens and teachers in civic education we are supposed to have a strategy already, and on the other hand partners of media, planning and policy institutions in many developing countries seek our advise and consultation.

Many of our partners in the South begin to feel uneasy in view of future developments in direct satellite broadcasting, computerised systems and transnational data flow, cable television and remote sensing.

Evidently, the Third World has to face sooner or later a second information revolution while the impact of the first has not yet been digested at all.

And the North so far - probably with the exception of the United States - is unable to offer models to the South which could be properly analysed, changed and redesigned by the developing world.

This informal gathering of outstanding representatives of Western media, research institutions and information policy has been convened to debate some of the issues at stake, to formulate some of the questions more distinctly and to try some answers in a very tentative way. Both, our friends in the West and our partners in the South should profit from our discussions, from our concerns and our doubts. One among you reminded me of the old joke: "Technology is the answer. But what was the question?". Let's recall what the question was when the New Technologies began to change our lives. Let's hope it had and has something to do with man and a peaceful future of mankind.

WELCOMING ADDRESS

DR. E. J. KERBUSCH

While I would like to welcome all participants very warmly I should, at the same time, introduce the organizer of this meeting briefly to you and share our views on this meeting with you.

The Friedrich-Ebert Foundation is by far the biggest of the four political foundations in the Federal Republic of Germany. The foundation was set up in 1925. It has the biggest research institute outside the Germany University system, and has specialized on the labour movement. In international activities, our programme has been strengthenend after the Second World War, and has become, as far as our financial commitments are concerned, the most important activity that the foundation nowadays is conducting.

We are investing about half of our global general yearly budget in international activities. The general expenditure of the foundation in 1981 was about 130 million Deutsch Marks, 49 per cent of it dedicated to international cooperation.

International activities are being conducted basically in five fields, cooperation with political parties and governments, cooperation with trade unions, the most traditional field by the way of our international activities, cooperation in rural development and cooperative development, cooperation in research activities, and the fifth part, our media programme is basically dedicated towards the problem of how to use media for development.

In our cooperation programme as far as media is concerned in the Third World, we decided in 1965 to start a communication programme of our own to assist and support the other activities that we have been doing in the Third World.

This programme was at the beginning, as sort of service programme for the other programmes. It gathered momentum and claimed rights of its own at about the same time as the Third World discovered communication and information as a separate independent important issue.

In fact we dealt with efforts to make the media of developing countries partners on more or less equal terms with the Western industrialized countries long before the demand for a new information order was brought into the discussion by the South.

It is with some pride that we can state this today without having lost our political identity. We have managed to avoid the missionary zeal of those hardliners in the South who want to bring about the so-called balance only by means of rules, regulations, filters and restrictions.

Trying hard to maintain this position of a middleman in the North-South context and on the German and European scene, we cannot rest on a fame that is only based on former achievements.

We need to seek a dialogue with friends, partners and critics from other countries of the West for our own sake and for the benefit of those who ask for our comments, advice and cooperation.

PUBLIC BROADCASTING - A MODEL FOR THE FUTURE

RICHARD BECKER

Broadcasting by public corporations which characterises the broadcasting system of the Federal Republic is prepared for the introduction of new media technology today in ever increasing measures. It is preparing programmes which, in addition to the traditional broadcasts, will be transmitted through cable or satellite. The essence of public corporations is that they are independent of economic and social groups. Broadcasting by public corporations is financed through charges fixed by the State Parliament of the various states of the Republic. Because of the constitution of our country, the individual states are sovereign in cultural affairs and that includes broadcasting.

The Federal Government, the Federation, and the Federal Parliament have no power in this area except that which they extend through the monopoly of the German Post Office, which provides transmission. The Federal Government is bound by the constitution to exert no influence on the content and programmes of broadcasting. That also goes for the two broadcasting stations which are organised not on the

basis of state but on Federal law, namely, the Deutschlandfunk and the Deutsche Welle. The Deutsche Welle is the classic German broadcasting station for broadcasts overseas using shortwave transmission.

The law concerning the Deutschlandfunk says that this station is to present an encompassing picture of Germany of all Germans and their Europeans neighbours.

These two Federal broadcasting stations are as independent in the shaping of their programmes as the state broadcasting stations. This in spite of the fact that the Deutsche Welle is paid one hundred per cent out of Federal funds, whereas the Deutschlandfunk receives one-quarter of its financial means out of the income of the state broadcasting organisations.

There is legal control by the state in the sense that the Federal Minister of the Interior is obliged to make sure that the Deutschlandfunk and the Deutsche Welle are working within their legal framework. Any other influence, like for instance, giving any form of directive to the head of the organisation or his colleagues are expressly denied to him as far as the concrete content of programmes is concerned.

The counterpart in this self-determination of broadcasting stations is the Director who is the official organ of the corporation. We have in management of broadcasting stations, no collective body of Directors, a supervisory board or anything like that. Only the Director who is solely responsible for the affairs of each broadcasting corporation in matters concerning programming, fincance, administration and the technical side. Since in the sphere of media also, power must be controlled, a Broadcasting Council is in charge and an Administrative Council has been placed opposite the Director. The Broadcasting Council is in charge of the control of broadcasting, ie. the Broadcasting Council has the duty to advise the Director, programme makers and those in-charge of programming on all questions relating to the programme. The law governing the Deutschlandfunk allows only general activities for the Director. There is no power for individual broadcasts. The Administrative Council which is independent of the Broadcasting Council has to watch over the business and financial affairs of the Director. It sets the budget. A further duty of the governing bodies is, if I continue with the example of the Deutschlandfunk, to choose the Director as the main person responsible for the corporation.

In our case, the Administrative Council is obliged to suggest three persons to the Broadcasting Council, out of whom the Broadcasting Council must choose one person in no more than three elections. In the

first two, a majority of two-thirds is necessary. If a candidate does not receive this two-thirds majority, the simple majority of the members of the Broadcasting Council is sufficient in the third election.

As to the composition of the governing bodies, there are some differences between those states which belonged to the American zone of occupation and others. Those who have had strong American influence will have a stronger element of representation for social groups. The majority of their members will not be members of political parties but of other social organisations, members of industry, artists, journalists, and so on. They are sent by those institutions whom the creators of the law had seen entitled to be represented.

In those corporations which had a strong Britisch influence, the members of the governing body are named by the State Parliaments, and in that way, the immediate political influence of party politicians is somewhat stronger than in the other cases.

There is a tendency, however, in the North of Germany, to reduce the number of politicians and to replace them by representatives of socially relevant groups as we like to call them.

Deutschlandfunk and Deutsche Welle are slightly different. These two corporations based on federal law draw their right to exist from the fact that, according to the constitution, the relationship between the Federal Republic of Germany and the German Democratic Republic, as well as foreign policy are matters of the Federal Government.

Broadcasting stations whose main functions lie in the cultivation of inter-German relations or foreign braodcasting, have been left to the authority of the federal organisation. The Broadcasting Council of the Deutschlandfunk, consists of 22 members. Six of those are sent from the Federal Parliament, six from the Second Chamber, the representation of the various state parliaments, five come from the reigning Federal Government and one of each from the Catholic Church, the Protestant Church, the Central Jewish Council, employers and Trade Unions.

These five socially relevant groups are in a minority. From the moment that these members of the various institutions have been appointed, and have taken part in the first meeting of the Broadcasting Council, they are no longer tied to any directives or obligations. In their activities as members of the Broadcasting Council, they enjoy similar freedom and obligations as members of the German Federal Parliament.

it is not their function to represent the interests of the Government or of a Party which has sent them, but as the law states, they are representatives of the community. All this seems very nice in theory but in practice, it is a little different. The people who make the programmes have to defend vigorously at times the independence of that which they put together as a programme.

Broadcasting through public corporations has made some remarkable achievements. It does not have to fear competitors who will appear with the extension of media technology. In our country, the discussion about new media is very closely linked with the question of whether one sustains the so-called effectual monopoly of the public broadcasting corporations or whether one should admit private or commercial organisations offering radio and TV programme.

Opinions are divided. Social Democrats, on the one hand, to name the most important ones, are against the admission of private broadcasters and particularly so, against commercial broadcasting. The present coalition and the largest part of industry is for the admission of private broadcasting organisations for radio and television.

Between 1970 and today, the broadcasting stations taken together have increased their programme output in radio by 25 per cent. In the transmission area of each state broadcasting station, the listener can choose between three, and in many cases, four different programmes of his local broadcasting station. Added to that are the national programmes of Deutschlandfunk and some programmes of neighbouring state broadcasting stations. In general, each radio listener can receive seven, eight or nine different programmes in his home.

That is because we have three, sometimes four, area covering chains in the UHF region so that we can split programmes to a large extent. In television, we offer every citizen also a minimum of three programmes. The so-called first programme which the ARD transmits nationally, the second programme trasmitted by the Zweites Deutsches Fernsehen, and the so-called third programme which again is a programme put out by each state broadcasting station.

In the border area between the various states, one can receive two, sometimes even three of these regional third programmes. Added to that in the border areas to foreign countries, there is the possibility of receiving broadcasts from Austria, Switzerland, France, Belgium, the Netherlands, Denmark as well as the stations of the German Democratic Republic and further down also those of Czechoslovakia.

Transmission time of the third programmes alone has risen in the past decade by more than one hundred per cent. The first programme has been extended by one-fifth and the second by one-quarter.

In about 1975, television found a form which it has maintained until today. The style of reprorting is different from that of ten or fifteen years ago. New technology, especially electronics and satellites, make it possible for the German viewer to see any event of political development of relevance. Live reports from all over the globe make current affairs something which our public can view with no loss of time.

I am convinced that this development will be systematically continued when new satellites, namely those with direct broadcasting capabilities, will circle the skies and when cable broadcasting is introduced.

The direct broadcast satellite will bring the world live, and without any intermediary and earth relay station or a central receiving station, into the drawing room.

Politicians are still fighting for the introduction of cable broadcasting. It is not a question of introduction itself, but the time and the technology to be applied. Cable broadcasting, once it is introduced, will increase the live dimension in local broadcasting. All the more, as we already have today the whole range of miniaturised recording and transmitting equipment at our disposal.

The development of technology, the electronisation, does not go on in the sky alone. It has influence on the working ways of the broadcasting journalist.

With the aid of portable electronic cameras which are independent of a fixed power source, connected also with a portable recording machine for magnetic recording on a tape which then no longer needs to be developed, the actuality of television has been noticeably increased.

Image and sound are sychronised, which means that editing time becomes very short. This electronic reporting was introduced only three years ago. News is, as with all broadcasting stations and especially with the Deutschlandfunk, the basis of all information programmes, and it has held its place in any reform of programme structure. The flood of news coming daily into the news department of the broadcasting stations is becoming wider, and can hardly be managed with traditional instruments. So it is no wonder that the transmission, selecting, storing and editing of these incoming pieces of information will be done electronically.

Public broadcasting corporations transmit video text since 1st June 1980. ARD as well as the second German television jointly maintain the editorial staff at the Sender Freies Berlin. This new technique makes use of the so-called gap line in the normal television signal. Videotext offers 150 to 200 sheets daily. Also, it offers consumer information since January, and five national dailies send daily press reports.

The video recorder and the video disk are becoming more and more popular in our country. By the end of the Eighties, every second household in the Federal Republic will have a video recorder and every third one, a video disk player.

These two new communication technologies will massively increase the competition, especially as far as films and entertainment are concerned. Much of radio and TV already comes from abroad, which means that large international companies dominate the market.

In the Federal Republic of Germany, the largest segment of our programme of entertaining music and radio comes from foreign productions. As far as films transmitted by television are concerned, the picture is not very different. But one must take into account that the public broadcasting corporations take their entertainment commodities from private producers. Private producers have even today - as sellers, contractors and co-producers - notable chances with the public broadcasting corporations. What will happen when the satellite is really there, when the cable is really there, when these new technologies are applied by commercial users, who will extend them in a large way? The public broadcasting corporations are worried that our programme obligation which cautions us to transmit information as well as entertainment, and education, will be watered down, and that we will be left to concentrate on education and information, while private commercial producers will provide the entertainment.

This development provides the necessity to go into the offensive. We must try to raise the attractiveness. We give our political information programmes special importance. The more the viewer by means of the video recorder or the video disk can become his own entertainment programme producer, the greater does the importance of current affairs as well as background reports of the public broadcasting corporations become on a worldwide and regional level.

In spite of the resistance from some political circles regarding new media and the danger of an information flood, I am convinced that this development will, at the least, be continued but not stopped. The extension and speed of this development will largely be determined by the financial possibilities of future users.

The decisive question will be the time elapsed in the development and extension of audio-visual recorded media, that is, the cassette and the video disk on the one hand, and on the other, cable or satellite TV. Since the budgets of private households as well as the budgets of advertisers are limited, there will certainly be a very hard and competitive fight for market segments.

Finally there is the conflict between a national media order and international communication policy. The General Conference of the United Nations has passed a resulution which says that states can veto unwanted satellite broadcasts from abroad. This decision which had been rejected by the Federal Republic of Germany as well as the United States and most other countries of the EG, makes it clear which barriers stem the free flow of information.

It is the nature of "border-transcending" broadcasts that they pass borders unhindered and bring information to listeners who not only live in other countries but also often in other political and social systems.

The technicians elegantly circumvented the political and legal problems at the Worldwide Broadcasting Administration Conference in 1977 by simply decreeing that direct receivable satellite systems should only be used for national broadcasts. They produced great details of performance parameters which were to ensure that the supply areas of satellite transmitters largely coincided with national borders.

It was, however, clear to all those concerned that labelling satellites as to be solely used for national broadcasts, could only be a goal which would never coincide with reality. It will never be possible to adjust the extension of radio waves to the arbitary course of terrestial borders. The various national satellite systems will always create spillover zones into other states, whose extension will depend on the strength of the satellite signal and the sensitivity of the receiving aerial. So directly receivable "border-transcending" broadcasting, contrary to what they are legally supposed to do.

I am aware of the fact that for the guarantee of free flow of information, opinions and ideas across borders, the principle of non-intervention into the internal affairs of other states is of fundamental importance. There can only be a question of informing, never of intervening.

However, the application of this principle is connected with some problems. From the totalitarian state concept, any information that

does not conform with current idiology can be declared as interference. The understanding of freedom, that is the basis of our Western democracy, calls upon us to apply the principle of non-interference in the area of media with discretion. It is my personal opinion that the principle of non-interference must be closely co-related to the principle of freedom of information, freedom of broadcasting and the free international flow of information.

I would prefer, if one could realise the principle of non-intervention not with the aid of state powers, but firstly, with an appeal to all responsible people in media that they should consider in their work the effect which it might have and that they should not misuse the possibilities of power and influence which have been entrusted to them.

On top of that, this principle could provide a basis for a European Broadcasting Convention. In this convention, a framework of rules could be set up for international information traffic which is aimed at ensuring the protection of elementary local goods and content, principles like the protection of personalities, the protection of youth, the obligation of accuracy and so on. They could enhance the danger that excessive commercial competition brings to national media systems.

As long as there are national borderlines which we try to transcend through broadcasting, there will be a conflict between people's elementary needs of information, the exchange of opinions and ideas across border on the one side, and the guarding of individual cultural and political identities on the other.

DISCUSSION ON RICHARD BECKERS'S PAPER

Some say that there should be slow progress with the copper co-axle cable and when the glass fibre is fully developed, and ready to use, to go ahead with putting cables in the whole of the Federal Republic. At the moment there are a few problems. Some computers have to be developed. When they are ready, the whole thing can get into full swing. It is difficult to provide some prognosis. The laying of co-axial cable as well as glass fibre is being quickened in this country. But in four or five years time, the co-axial cable will no longer exist.

The former Federal Minister of Research of the Social Liberal coalition once said that business communication would draw the largest profit

from the new media technology, especially the glass fibre. He even put the figure at 80 %. The rest goes to radio and TV.

Radio and TV are, in the light of this technical development, almost waste products which one has to take on but the main segment will go to the others.

And that includes the partially-business, partially-mass communication traffic in the so-called feedback or two-way system, in which you can communicate with your broadcasting stations by telling them whether you like the programme which is being put out or not. You can also come into contact with banks and department stores. You can order theatre tickets, check available seats and pick the free seats that you would like and pay for them directly.

This is not so much done by videotext but by Fernseh-text, presently via telephone lines, later on by means of broadband systems. With the feedback channel, you can also go into local Parliament. You can, if you like, simplify election procedure, where people will vote for local regional or federal elections from their drawing rooms. The fact that you do not need to go out shopping or even doing office work anymore, is one of the reasons which bring in worried social critics, especially the Social Democratic Party, to resist a too-large extension of new technologies.

They say when all that comes in, a lot of inter-human communication is lost. People will withdraw fully into their local sphere, which can only be a hindrance to the development of elemantary human relations and also to the democratic way of life. There is also a whole host of data protection problems. Not so much with cable TV, but with what we call Fernseh-text.

Even today, it is possible if one is not careful, by analysing orders which people have made with certain dealers to find out whether somebody has a lot of money.

The worst example which can have unpleasant consequences is when a more or less well-known politician has the chance of ordering pornographic movies. The number which he dials if he uses television-text will be registered somewhere. There is no one hundrd per cent technical solution to this, and somebody can get hold of his telephone number. Somebody can use this information at the next electoral conflict.

SATELLITE SYSTEMS IN THE WESTERN WORLD - THE US EXAMPLE

BERT COWLAN

I'd like to start with someone else's words, and give an indication of some problems I can see in the mid-to-long-range future vis-à-vis direct broadcast satellites in the US.

Dr Carroll V. Newsom, an eminent scientist and educator, once said: "With the advent of the communication satellite, the term 'international communications' has suddenly taken on a series of connotations that have introduced to the world a new set of problems of vast complexity and grave consequences. Again we find ourselves dealing with a situation so common in modern times, wherein technology has outrun man's true understanding of its potential, often potentially disastrous, effects on a society."

Newsom - and he was and is no Luddite - said that back in the late 1960s or early 1970s. And it seems to me, especially viewing the satellite scene internationally, the true impact of his words has yet to catch up with policy planners.

In seeking to describe the US situation I am reminded of another quotation. It goes, "things are never what they seem. Nor, are they otherwise".

That bit of involved logic seems to apply well to the US domestic satellites scene. Some years ago our policy pundits set forth upon a course which can ligitimately be characterised as a "frenzy of deregulation." The gist of their thinking seemed to be, "take away all rules and the market place shall make you free". In this connection I can only quote a recent conversation with a vice president - financial type - of AT & T who told me that, in his view, AT & T should never have been deregulated to the extent that it seems to have been. The net result, he maintained, will be that when I get my first telephone bill under the new rules, more accurately "lack of rules", I won't be able to understand it and when I get my second bill I won't be able to afford to pay it.

One further word about deregulation - of which satellites are a part - and then I'll try to explain satellites. The situation in the US has reached a sufficient state of confusion that, at a recent board of directors meeting of the National Cable Television Association, two resolutions were passed. One was to ensure that all available means be employed to stop municipalities and states from regulating cable television systems. The other was for cable television systems to take all necessary means and steps to keep the telephone company out of cable. Or, to put it another way, "regulate them". That the broadcast press commented on this with a straight face and no editorial howls of laughter is yet another example of the fact that the broadcasts press will stop at nothing to avoid offending potential advertisers.

Satellites are, of couse, intertwined with cable systems, at least up to this point. However, the current worsening economic climate has driven several large programme vendors out of the satellite business and often at considerable cost to their corporate stockholders. I refer to efforts which had been mounted to distribute programmes to specialised audiences, either advertiser-supported or for a fee, via cable system head-ends equipped with satellite terminals.

The next generation attempt to pyramid satellites into pots of gold at the end of the rainbow is virtually upon us. The Federal Communications Commission, champion of deregulation has now granted a total of some 9 companies the right to set up high-powered satellite systems from which to beam directly to US television homes.

Satellite Television Corporation which vies itself essentially as a carrier for others to programme, unlike COMSAT's operation which

seems to be comtemplating its own programme operations, has been the first to receive a grant of this sort. Others include CBS; the Direct Broadcasting Satellite Corporation; Graphic Scanning Corporation; RCA American Communications; United States Satellite Broadcasting Co; Vido Satellite Systems and the Western Union Telegraph Company.

At an earlier stage in the applications process, and probably because I once ran an organisation called the Public Interest Satellite Association, now some three years out of business, I received a letter which informed me that the writer was applying for a satellite license.

The letter asked, "Please tell me all you know about satellites". This was not a particularly unusual letter for the Public Service Satellite Association to have received and I was about to send the "Sorry, we're out of business" form letter when I noticed that the letter to me was signed Mr XYZ, #1234567.

I thought this a rather lengthy post office box number until I turned to the envelope and discovered it was from Joliet, Illinois, the site of one of our largest federal penitentiaries.

The box number was the prisoner/applicant's jail number.

Let me add that I make no connection between the applicant and any other applicant. Other than, perhaps, that all applicants see in satellites a way to get rich.

I've been a little less than serious up to now because it's hard to know quite how to read the entrails if one seeks to maintain a reputation as a prophet. There are among the applicants some large and important corporations otherwise known for their seriousness and sobriety.

One would assume they had carefully researched the potential market for those US TV householders willing to pay about $300 for a DBS dish and associated equipment, plus a monthly charge - generally estimated at about $25 to receive a few channels of direct video, despite the fact that virtually all of the United States has several channels of free video available to it.

And, if one is to believe the cable operators, soon all will be blessed with 150 channels, two-way - bells and whistles attached - interactive cable systems that will not only provide video but play games with you and take care of the kids when you're away from home. If that is so, there is no longer any incentive to leave home for any reason, or one

has no money left after paying for all these services to do anything else for amusement or, for education.

Education via TV is a big buzzword now and education via-two-way-interactive-Television-cable-systems-augmented-by-home-computers is an even bigger buzzword.

In regard to this impossible word, let me remind you of only one other point vis-à-vis this brave new world of cable-cum-computers: the Apple II is a best selling "personal computer". A fully-equipped one is delivered with instructions for quite a few thousand dollars. Software is more. The most popular programme being purchased for this computer is VisiCalc, a kind of moving accountant's spread sheet. The next four most popular programmes for this machine are video games!

Where is all the money to build these systems, estimated at from 200 million to a billion dollars, COMSAT's system is expected to cost about 700 million alone, to come from?

And, where will all the programmes come from? Cable is even now reduced to constant repetitions of old movies although some cable system programme vendors had turned in other directions. Some of these failed spectacularly.

When seeking money in the US one generally turns to Wall Street. Said one prominent Wall Streeter recently: "We're not that bullish on the DBS market...I don't think there's room for more than one or two DBS operators".

There are some who, given the ready availability of TV programmes in the United States and the growing videocassette market, a phenomenon certainly well-known in Europe, even doubt the one or two.

There are isolated and rural pockets which can be charcterised as "underserved by TV" but often these are the markets that could not afford DBS. Time will, of course, both tell and heal all wounds.

There are some other complications. Even now, and this is why I made extensive reference to the "deregulate me, but regulate him" attitude of the cable system operators, there is an attempt being made by one satellite applicant, Satellite Television Corporation, to have the FCC withdraw permission granted to its competitor, United States Television.

And, there has been some legal unpleasantness caused by the National Association of Broadcasters, of which CBS is a member as is RCA through its ownership of NBC, suing to stop COMSAT's plans. And, those of all the others.

If one adds to this questions of privacy, copyright and socially efficient use of spectrum and the recent Covenant passed by the UN as it may be used, when questions of frequency allocation arise, I will cheerfully grant that "the capabilities of technology form the least realistic basis for predicting," I will venture a prediction.

There seems apt to be far more litigation than launches in the near future, and the star wars may yield some benefits to others but the first beneficiaries will be the lawyers.

DISCUSSION ON BERT COWLAN'S PAPER

There is a difference between privacy legislation in Europe and in the United States. One is the market definition and it creates a whole lot of problems in the United States. In Europe there is a totally different attitude towards public corporations, the use of technology, personal, privacy etc.

Cable investment is a different thing entirely, because cable if it comes, will then take the place of the cassettes.

Because the networks haven't been delivering the kind of programmes that the people really want, cable, theoretically, was to provide choices of better programmes. Home Box Office is doing well because they are providing those first run movies a year later.

In the United Kindgom there are second thoughts on cable, and direct broadcasting satellites which is going to be supported by subscription.

There are of 200 transponders in the Western world - defined as Canada and the US - that are available. Yet, less than half or approximately half are in use from a recent study conducted by FCC. With these numbers in mind, how can the launching of many new satellites be justified when the present capacity is under-utilised?

There are some technological reasons or technical reasons for justification. Most of this new transponder space will be in the 12 to 14 GIGA

Hertz range, compared to what is in place, and the notion behind that, is that the additional spectrum space in that range gives you more of not only the spectrum band width, the frequency gives you an opportunity to broadcast into areas that are already fairly heavily microwaved or otherwise interfeered with in the terrestical spectrum.

When Satellite Television Corporation or COMSAT originally said: Oh, our market is going to be the isolated rural American Household that is deprived of television and cannot get the three network channels, what they were really after, obviously, were the urban markets, and they had to go into 12 and 14 Giga Hertz because in those markets, the concentrated markets, the noise ambience is already so full that there was no way that you could blast in with 4 and 6, because it is used for terrestrial purposes.

How can you justify the sheer amount of transponder space is an imponderable, unless you recall that a lot of the studies about transponder availability were conducted about 4 or 5 years ago and were based on kinds of straight line assumptions - that is someone took the amount of transponder space being used, looked at the number of companies that were coming on-line, some of which had actually made it and were doing some programming for the purpose of providing cable systems, operators who had terminal and headends for programme material.

In fact, exactly the opposite happened. Many of them went broke, so that when you start with making the straight-line linear assumption of the need for transponder capability and something happens to your assumption three years later, and you bear in mind the fact that in order to get a satellite by-line in 1985 you had to get planning it by 1980s, it is fairly easy to see what had happened, and why we will have in effect a considerable surplus rather than a scarcity of transponder availability.

The backers or PRESTEL are bragging about the fact that you can plug in the PRESTEL and get an airline schedule and you can even book an airplane ticket. Well, there is another marvellous device for that. It is called a travel agent, and a travel agent has already an on-line computer which is being paid for. Probably at some point that travel agent will start charging for that purpose.

In terms of the networks, the prime time show is what Americans really watch. The others are supplementary. The prime time news shows are relatively superficial, with the occasional exception of the last three or four minutes. Here they try to give some analysis. Basically it is a headline show.

Now if you look at the history of newspapers in the United States, precisely the same kind of history is revealed at their outset when newspapers were actually a kind of plaything. It was yellow journalism, it was party-oriented, it was not too credible. But what makes the difference in the printed press is the fact that the newspapers, the better ones have gotten over the fact that ratings come first. But instead, the coverage of the news comes first. In the networks' news departments very often the question of what will play big and what will keep the rating, becomes a very important factor.

A world-wide survey of national and international broadcasting feedback was done at the American University of Washington, DC. After 6 months of research it was found that there are only half a dozen broadcasting stations around the world that have any systematic type of feedback as to what the audiences or viewers really want or what they like to have, There is a very paternalistic view of what is good for the public.

Ten or twelve years ago something like 55 per cent of everybody's information was coming from television. Thirty per cent of the adult population reads Newsweek and Time magazine each week for their source of information. So there is something missing here that we need to struggle with. We recognise that potential, we need to sort out our expectation, what we really want these new technologies to deliver and then begin to work together.

More and more news are being crammed into the bulletin. The more you cram in, the more areas you try to cover, the less work you do. The networks do try to explain current issues. But the people who watch the television news bulletins at prime time are not necessarily going to hang around to get the explanations later in the evening. Some will, of course. But a lot don't. They switch off, to other things, to other channels. It is well known that audiences for current affairs programmes drop off even if they are immediately after the news bulletins. So what the producers of news bulletins perhaps ought to do is pitch them at a higher plane, helping people understand these issues, rather than try on following programmes to do so.

A lot of people who watch television bulletins think that they are seeing in effect the major news items of the day. In fact it is a selction, a very dubious selction frequently.

UNISPACE 82 – A SUCCESSFUL FORUM?

LEE LOVE

Anyone wanting a thorough appreciation or understanding of UNISPACE 82 must regard the conference as a single event in a chain of events. The conference was mandated by the UN General Assembly. Responsibility for its preparation was given to the scientific and technical committee of the Committee on the Peaceful Uses of Outer Space. It had its own secretariat directed by Prof Yashal of India and it met in Vienna in August of 1982.

It was "billed" in advance as a technical meeting. One had only to glance at the composition of most of the delegations present and the treatment accorded to UNISPACE in the world press to rapidly became aware that it was far more political than technical.

What were some of the issues and problems? The press saw it as a meeting about militarisation of outer space!

The meeting opened with a blast fired in the direction of the United States for its failure to agree to Russian proposals to keep outer space

free of weapons of mass destruction and future anti-killer satellites. Both had been discussed at a meeting on disarmament. The United States felt that all discussions of these matters should remain with the Disarmament Committee and not at a technical meeting such as UNISPACE. The blast against the United States was started by a high-ranking Australian official. Almost every major figure who followed echoed the same theme.

At UNISPACE 82, the Russions benefited greatly from the United States refusal to discuss disarmament. However, at the Committee on the Peaceful Uses of Outer Space (known as Copuos) many Third World countries see the USA and the USSR as working closely together to "conspire" to keep them from their rights to and in outer space.

From the Soviet perspective, the US space shuttle - was and is - seen primarily as a weapon system. From the US perspective - and that of its allies - the Soviets's talk of being willing and able to "shoot down" satellites feared to have military capabilities, is disconcerting. All of this is reminiscent of the 1950s when much of the driving force for discussions about satellites at the UN stemmed from fears about militarisation of space.

The developing countries are becoming increasingly aware of the potential of the uses of outer space for economic and social development. They feel caught in the middle, "trapped" by the space superpowers and are both resentful of them and determined not to be left out of the actual and potential benefits. This was not only evident in Vienna in August, but was made even more so at the UN last week.

Strangely, there was little press covervage or discussions about the outstanding governmental and commercial technical exhibits, except perhaps in the media of the countries exhibiting. The non-governmental conference held in parallel with UNISPACE, while rich in speakers and content, suffered from poor attendance. The COSPAR and IAF forum which preceded UNISPACE, featured outstanding scientists and highly technical presentations, but was attended by indivduals most of whom were not governmental delegates.

The final report of the UNISPACE conference is an outstanding document. Its recommendations and conlusions are practical and, in a different world economy, affordable. The usual UN conference recommends expenditures of hundreds of millions of dollars. UNISPACE did not. Its budget figures were comparatively modest and its stress was on personnel training and prorammes. Even the discussion of a space centre was in modest terms. It was not intended to

be a new agency or institution. If all the UNISPACE recommendations could be fulfilled, this would be a far better world for us to live in.

But even as the sensible recommendations were being adopted by consensus in Vienna, one had to wonder where the money to pay for these activities would come from. The UN is in a zero-budget growth mode and the fact that its fixed costs are rising steadily as a result of inflation, recession and currency fluctuations makes it seem unlikely that even the best intentions can find funding.

The developing countries at UNISPACE were, even despite the political, rather than technical, nature of their delegations, aware of the benefits of satellite broadcasting and remote sensing, and fearful of lack of parking space in the geo-stationary orbit.

They express other fears and these are both revealing and apt to be turned against the developed countries. There were indications of this at the ITU plenipotentiary meeting in Nairobi. There were measures taken at the UN's special political committee and the meeting of the General Assembly. There will undoubtedly be more at other upcoming meetings such as the high frequency radio conference in 1984 and 1986.

The concerns range from the fear that there may be modifications of the upper atmosphere from ultraviolet radiations as a result of space activities, to fears about ion beams, electromagnetic waves and solar power sateliites having undesireable effects on man and environment in general. Debris from outer space is an issue. The fears deepen as a result of the fact that some satellites carry nuclear power systems.

Mostly, though, they are perturbed by the domination of outer space and its benefits by the developed nations which have the technology and the financial ability to use space, eventhough it was the developed nations which made a priority issue of space and expended billions of dollars on research and development.

I'd noted the developing nations see themselves as "trapped" between the superpowers. One way to escape the trap - and the final report offered many suggestions along these lines - is to provide a greater role for the UN itself which they see as benign and neutral. The developed countries - and I think this is particularly appropriate to the considerations of this colloquium - are seen as being interested only in their own commercial and national interests. (This fear may not be restricted to developing countries alone; one only has to consider some of the recent discussions in Europe about Luxsat, TDF 1 and 2, TV-Sat here in Germany, Nordsat, and the rase in feelings about trade and services protectionism.)

While some of these matters may not have been dealt with directly at UNISPACE, it was clear, from following the corridor talk and unofficial discussions, they were on the minds of delegates.

Radio frequency spectrum - and the shortage of it - was a major issue.

They not only fear direct broadcast satellites as an instrument of "cultural imperialism," but also the effects on their own budding theatrical and technical talent and, as well, on their advertising and marketing media and industries. Further involved are fears of a "revolution of rising expectations" combined with fears of political ferment imposed from outside.

Proof of all this was the recent passage by the General Assembly of an "international set of principles governing the use of states of artificial earth satellites for direct satellite broadcasting." While much of the rhetoric concerned "cultural imperialism" and "preservation of cultural integrity," I see it as no accident that the minority opposed to the resolution included all of the NATO countries except for Turkey and Greece.

Those who voted against it had, and have, one overriding concern. They, or at least this was the offical US position, could deal with the concept of consultation between states seeking to direct broadcast via satellite to one another. Indeed this makes sense even from a commercial point of view; no one would wish to pay for either commercials or programmes transmitted to a country which might not want them and would take punitive actions against either viewers or advertisers. The sticking points were in two clauses, one which called for states to bear international responsibility for a country such as the US and likely others - and one clause which called for "conformity" with the principles of the resolution.

Those opposed felt that this was diametrically against the concept of a free flow of information. Perhaps most importantly - and this may help explain the breakdown for the vote along Nato lines - the call for "conformity" gives "the colour of law" to a nation taking military action against a satellite operating in violation of these principles.

An awareness of space is beginning to permeate the entire UN system. Therefore, one way to view UNISPACE and its results is as a starting point - a focal point if you will - rather than as an event by and of itself.

The vote taken by the General Assembly on DBS may well have changed the nature of the Committee on the Peaceful Uses of Outer

Space. We must be prepared for a call to vote on such issues as remote sensing, the Geostationary orbit, nuclear power satellites, solar energy satellites, and any other issues that come before the committee. Unfortunately, it appears that the procedure of reaching agreement by concensus at the United Nations has ended: There is now a burden incumbent upon the developed nations, not only as individuals, but as a group, to find, offer and provide new initiatives in cooperation with one another and with the developing world.

DISCUSSION ON LEE LOVE'S PAPER

The question of state responsibility makes quite clear the fact that the matter of choice becomes a veto, when the choice involves the decision not to let something across your borders. That is a veto for the people living inside those borders.

The implication that everything under the jurisdiction of a government of these terms by virtue of this convention now be subject to that government whether it will be state-owned or privately-owned, any communication passing through the DBS system is a very new philosophy. It was introduced for the first time in 1975 in the UNESCO setting and was defeated at Nairobi, and lead to all manner of changes including the McBride Report. But here it is now passed word for word, and there is no uproar. It is a very significant philosophical and legal change. People have not awakened yet to the fact that it puts states in the drivers' seats.

It has set up effectively a regime that now also manages GSO and remote sensing because that is implicit in what happened in the General Assembly. it was the acceptance of the prior consent regime. Whether people want to read it that way or not, is immaterial. And so you automatically ruled against a sensing of other peoples' countries without prior consent. Which is the only viable commerical remote sensing capability that is going to be around in 1985. All of a sudden a market disappears. The market was only there as long as you had a user community; it didn't have to have anyone else's permission to do something. Now you not only need my consent to sense me, but you have to have my consent before you can start to sell the product. And this is going to spin off in the New World Economic Order and the Information Order.

The ITU as the functioning body of the UN, the specialised agency which deals with the assignment of frequencies and slots will now be

forced to entertain applications from Brazil, Ecuador and Colombia before they entertain the need for 27 slots for the US domestic DBS system.

Satellites do die. They don't stay in their parking slot. That slot then does become available, and nothing has been said that it has to go back to the same country. It has never been taken away from that country. But there haven't been any demands as yet either, and hopefully there will be demands, finally from the developing world for some of those.

THE PTTS AND THE NEW TECHNOLOGIES

DIETRICH ELIAS

In the last few years, telecommunications have become more and more interesting, for considerable growth can still be expected for years to come, whereas in many other branches the limits to growth are already becoming clearly visible. I am not thinking here so much of a purely quantitative increase. Rather, this growth will be accompanied by fundamental qualitative changes and will consequently involve great risks.

New technical possibilities are emerging which could radically change our business and private lives.

These possibilities can lead to increased productivity and to better working conditions for the individual.

Data processing and data transmission, previously two seperate fields emerging in equipment, engineering and in operation.

just a few years, optical fibre cables will provide us with more efficient, broadband cables at favourable prices.

From this arises a variety of new communication possibilities for use in the 80s in the economy, in administration and by private consumers.

A further point to mention is that these services are ecologically beneficial, require particulary little energy and raw materials, a fact that will be increasingly important in the future.

But there is also a component to do with employment policy which must not be overlooked. This year, the Deutsche Bundespost's (Federal German PTT) investments were in the region of DM 13,000m. Next year, this figure will not be far short of DM 15,000. Appoximately 90 per cent of these investments is accounted for by telecommunications. This means that, in all, more than 200,000 jobs industry and small-scale trading can be secured.

To be able to maintain this volume, not least for reasons concerning the labour market, but also to be able to offer new services in line with technological advance, the Deutsche Bundespost is endeavouring to develop new forms of telecommunication in addition to the "ordinary" telephone service.

Even the "classical" telephone service has room for significant expansion.

For expample, several different design telephones offered today besides the standard telephone.

To meet customers' wishes for greater convenience in telephoning we have introduced the "Alpha" telephone, which provides one and two-button dialling, abbreviated dialling, automatic repeat dialling and triple-one telephone chimes. A telephone with an indicator panel is being developed. The family telephone too, offers the user greater convenience. Conceived as an extension of existing telephones, up to four telephones in addition to the original one can be used for calls within the home.

Incoming and outgoing calls can be received and made with any of the additional telephones. However, attention is chiefly focused on the possibility of families making calls within the home, free of charge. This possibility of internal communication makes distance shorter, telephoning more diverse and, most importantly, more convenient. Market enquiries show that there are requirements for such additional facilities.

On the whole, we may expect the new service to help make the telephone an even more integral part of peoples's private lives.

To improve and supplement our telephone services we are planning, for exmaple, computerised Directory Enquiries and a call diversion service.

Of special interest for many enterprises will be the new "Service 130" which is to be tested from mid-1983 initially as a trial operation. It is very similar to the American "Service 800" also known as the Wide Area Telephone Service under the name "WATS".

This service offers telephone numbers which can be reached free of charge, the called subsciber taking over the charges. With such a number a business can become nationally omnipresent without having to establish an extensive network of branches.

Service 130 shows how with some organisational imagination, new services are also possible with existing electromechanical switching systems which will remain operable in the longer term.

We are planning a new Car Telephone Network, Network C. The present network currently has some 19,000 subscribers. Ultimate capacity will be reached at the end of 1984 with approximately 23,000 subscibers. After that date, new subscribers will use Network C.

This will have the following new facilities. It will be possible to reach subscribers without their exact whereabouts being known. Calls will be switched over to another frequency when an adjacent radio zone is entered. Calls in coded speech will be possible. A cheque card system will be introduced. Total capacity of the C-network (with small radio zones will be approximmately 100,000 subscibers.

An interesting, new form of communication is Bildschirmtext (interactive vidotext). Since the German Cabinet decided last June to introduce Bildschirmtext for individual communication as from 1983, preparations are well under way.

Roughly one million subscibers are expected for 1986. The Deutsche Bundespost will have invested some DM 500m by that time.

Information providers already shown a great interrest. This is also true of **Teletex**. Introduction of the Teletex services in the area of the Deutsche Bundespost goes back to a recommendation made by the Commission for the Development of the Telcommunication System in 1976.

Just as the traditional telex service and the facsimile (Telefax) service, so too was the Teletex service designed for business correspondence. Teletex permits correspondence, some of which is still sent in letter form today, to be transmitted electronically over a DBP telecommunications network with memory typewriters capable of communication with each other at lower cost and considerably more rapidly.

Teletex terminals can be communicable memory typewriters, text editing or processing systems as far as these are permitted by the Teletex service.

After the required international standard was adopted at the end of 1980 , the Deutsche Bundespost opened the service in March 1981, the first administration in the world to do so. Meanwhile, the German Teletex network has been converted to the international standard.

Data communication has become ever more important for the economic infrastructure. In the last few years extended data communication facilities have been offered by the construction of special networks: the circuit-switched Datex network (DATEX-L) and the packet-switched Datex network (DATEX-P).

Broadband distribution networks are becoming apparent as a result of forthcoming state legislation in our countries.

Foreseeable technical development in telecommunications in the next few years will be most prominently marked by the general conversion to digital systems in all telecommunictions networks, and by the introduction of optical communications transmission using optical fibres.

The result of this development will be the gradual merging of the previously separate telecommunications networks to form one integrated network for joint use by all the telecommunication services, whereby the introduction of optical fibre technology will also lead to side integration of the broadband services.

This is a worldwide development, chiefly attributable to the diverse technological facilities of digital systems.

Another basic advatage of digital technology is that it facilitates system and service integration as the same technology can be used for transmitting, switching and controlling various information which can lead to considerable reductions in costs.

The Integrated Services Digital Network (ISDN) will then provide the possibility of transmitting today's standard services such as speech, data, texts, facsimile (digifax), pictures and combinations of these in one network.

With these networks it will also be possible to automatise mail transmission both internally at the Deutsche Bundespost, and also in national and international business dealings.

Preliminary to nationwide ISDN, the present level of space and telecommunications development permits more satellites to be incorporated in the national and international network, and used for all services.

Thus there are plans, for instance, for new transmission paths for rapid data communication within the Federal Republic of Germany including Berlin (West) and in Europe over the TELECOM 1 and ECS satellites to be opened in approximately 1984.

In conjunction with other European administrations, the Deutsche Bundespost is currently considering to what extent it can offer its customers prior to an integrated terrestrial optical fibre network, new, in particular integrated, telecommunication services that are not possible with the existing networks, with the help of modern satellite technology.

The Deutsche Bundespost is breaking new technical ground, above all with its activities in optical fibre technology for transmission systems which will be able to transmit vastly more information than today's systems.

With the sum of DM 150m the Deutsche Bundespost is supporting the development of a broadband integrated optical fibre local telecommunications network (BIGFON).

From the mid-80s, optical fibre cables will be laid instead of copper cables, over which sound and television broadcasts will be transmitted along with telecommmunication services such as telephone calls.

The economic advantages of transmitting many services on one optical fibre are obvious. We need only think of the substantial share of civil engineering costs in the total investments for a telecommunications network which feature repeatedly in separate networks for narrowband services such as telephone and telex, and for broadband services such as television or high-speed data transmission.

Another aspect is the international competitiveness of the German telecommunications industry, the promotion of which in an area that is very likely to encompass a future key technology in telecommunications, is understandably, in the Deutsche Bundespost's on interest.

In this connection, however, the Deutsche Bundespost does not see

itself as an authority which is responsible for the research and develpment of new technologies.

Rather, it sees itself increasingly as a state enterprise whose primary concern is to offer customers services, services in the form of complete telecommunication systems in which technology charges and conditions of use are in optimal harmony.

But after these observations on the long-term development of the telecommunication networks, I should not omit to mention that there are still some question marks over the subject of appropriate terminals. Development in this field is just beginning.

Now telecommunication services can only materialise when terminals are developed that can be offered to potential customers, and when demand backed by actual purchasing power exists.

The industry, however, will only take on the risk of developing terminals when it is sure that the appropriate telecommunication networks can be established in time.

This, however, means that the network operator, that is, the Deutsche Bundespost, must do a considerable amount of work beforehand.

This "chicken-egg" problem is found with all new services that require new networks.

And even when the Deutsche Bundespost has provided efficient systems for new services, private initiative in developing appropriate new terminals is not always enough to make an innovation successful.

Just as all other operating telecommunication administrations, so too is the Deutsche Bundespost a network operator and a service provider interested in the demand for innovative services, and indirectly in favourable developments on the markets for the corresponding terminals.

But when the costs of research and development are high, and when because of the uncertainty surrounding producing and not selling equipment economies of scale and thus attractive prices for the customer cannot be expected, the introduction of innovative products does not take place at all or is considerably delayed.

Wherever such timidity occurs because of the risks which private parties are loath to take on, the Deutsche Bundespost can step in by

placing corresponding orders with the possibility of economies of scale, and passing on the lower prices to the customers.

The example of the family telephone shows that the incentive for the providers to develop this equipment on their own initiative was small, all the more so as it was in competition with the standard PBXs they were already producing.

Without the Deutsche Bundespost's guarantee to purchase worthwhile quantities this innovation would probably not have been realised, and this new market not opened.

We may assume that the Deutsche Bundespost will also have to discharge this function of opening markets in the future, precisely to make innovative services possible.

That successful introduction, in addition to providing incentives for the domestic market, can also benefit foreign markets is also illustrated by the example of the family telephone.

Meanwhile, several neighbouring European countries such as the Netherlands, Austria and Switzerland have adopted the German version of the family telephone.

This has opened up new export markets for German producers, particularly in small and medium-sized firms.

In conclusion, there is one question to which I should like to return. The public enterprise Deutsche Bundespost has diverse tasks of technical communication to perform within one enterprise - communication in the physical sense, for example, the telephone.

Notwithstanding its legal mandate, it is a declard business policy aim of the Deutsche Bundespost to continue to manage Posts and Telecommunications within one organisation.

Even if some foreign administrations, particularly because of their different conditions of production, conduct posts and telecommunications as two separate, independent business, I am nevertheless convinced that the Deutsche Bundespost can best fulfil its commitment to the public if technical communication continues to be provided by one enterprise.

Let me give you an example to show what I mean. I have already mentioned that the planned digitalisation and integration of the networks along with the transmission capacity that will be available in the future, offers the possibility of electronic mail transmission.

Electronic mail is aready a reality in the USA.

In the coming months the Deutsche Bundespost will be considering whether there is a market in the Federal Republic for such a service, and whether electronic mail is an economically viable proposition.

DISCUSSION ON DIETRICH ELIAS PAPER

Satellites will become telecommunication equipment within the next 10 to 15 years as there are cables or amplifiers or exchanges. There will be an agreement with the French government for a new television satellite. The German aviation industry and telecommunication industry are developing a satellite to be started in 1987.

One of the main problems in the future will be wether there should be a separation of postal and telecommunication services in Germany. In the long run it may be wise to have both together, because normally in most countries, the postal service is high in deficits while the telecommunication service is making high profits.

THE IMPACT OF NEW COMMUNICATION TECHNOLOGIES ON THE THIRD WORLD

HERBERT SCHILLER

If we are describing information technology and its development and utilization today, we are considering three significant contributing factors – at least in the U.S. experience.

First of all, there is the astonishing amount of money spent by the Pentagon on research and development on new communication technologies. These outlays have been made over a 40 year period, beginning with the World War II expenditures. They continue into the present and are most visible in the projected 1984 - 1989 national budget. More than any other item, communications' technology development, has the largest projected increase in expenditure. One cannot avoid the powerful impact of military objectives on the development of new information technologies.

The one item in that almost inconceivable budget that has had the highest increase, is in the area of communications technology. We must recognise the inspiration for this enormous amount of money, this technology, why it is being made, why it is being produced, and what purposes it is tended to serve - the military purposes.

A second contributing element in the development of the new technologies is governmental, apart from the military factor already referred to. Governmental input comes from a wide variety of national experiences. Official and semi-official statements in

Germany, France, the United Kingdom, Canada and the United States reveal significant similarities. The governmental leaders speak about the new information technologies, with reverence, as job creators. They describe rhapsodically the jobs that will be made available by the new technologies. When the individual, national statements are compared, their delusionary character become manifest.

Yet in each country, people are told that they will benefit from the increase of high technology exports that their new industries will make possible. These centers of new production will overcome, the leaders claim, the industrial stagnation and unemployment that presently characterize most of Western society.

The governmental outlook, in the West, therefore, is quite upbeat and optimistic about the prospects for revitalization. There is yet another element in the high-tech picture. This is the corporate one, and, not surprisingly, the most realistic of all. The new information technologies are the main means of carrying on corporate business, domestically and internationally.

The satellite can be understood not only as a transmitter of television but as the supplier of data. It assists in the transfer and expediting of data, which now constitute a daily necessity for the large business concerns operating in the international arena. Most of the data are sent to affiliates and circulates inside corporate systems. Many of these systems are entirely private and they may link dozens of international sites.

The military, the Government as job creator, and the transnational corporation, therefore, are the main actors in the emerging information age. The individual consumer comes into it almost as an afterthought. Though individual comsumption constitutes a significant market, it is neither decisive nor comparable to the three main aforementioned sectors.

Where do these developments leave the less industrialized countries? The fact is that they are outside of these changes. They are excluded from the main arenas of decision-making.

Actually, there are a few developing countries who are somewhat involved and, posses at the same time, sufficient economic strength to exercise some influence in current developments. But overall, the ability of most nations to make any kind of significant input in the large scale transformations underway, is practically non-existent. Yet the

Yet the entire character of information generation and distribution, and all the activities dependent on information, are being transformed. In these multitudinous changes, one development stands out. Information is being put on a sale basis. It is being made into a commodity for practically all uses. In brief, capitalism has now occupied the last human realm. Information, after land, and labor, is now fully in the market system.

What are some of the consequences? To name just a few: Libraries will no longer be places of free access, as we have known them for generations. They will be installations where one will pay to get electronic information.

The divisions in capitalist society will be expanded. The latest will be based on the ability to get information. Access to information will not be deliberately withheld. It will be made available instead on a market standard. It will be forthcoming to those with the ability to pay. And it will be produced only if there is a paying purchaser. Already, U.S. government information is being withdrawn from public availability and put increasingly on a "for sale" basis.

As inequality of information access and control widen in the ready-industrialized, market soceities, what can the developing world expect from an information technology that has been developed, installed, applied and operated to further the market activities of both the new industries and the transnational corporate sector in general?

Unless significant changes – social, political and economic – first occur in the developing world, the less industrialized nations will be hooked into electronic dependency. They can expect little that will lessen their existing conditions of misery and weakness.

Certain social strata will benefit and certain features in their societies will be "modernized" – some big, flashy downtown buildings and tourist installations, no doubt. But the general conditions of distorted development and deep inequality can not possibly be overcome or eradicated by the application of the new information technologies. On the contrary, and paradoxically, the more technically impressive the new instrumentation, the more likely the increase in dependency.

Consider these few developments! Take, for example, the matter of "prior consent". The case of Canada is illustrative. Canada is bombarded daily with untold numbers of externally-generated media messages. Though Canada is an industrialized country, its objective conditions force it to question the unalloyed "free flow of information." What does this signify for countries without Canada's economic level? How may they protect themselves from the new information technologies? There is Remote Sensing, a potentially wonderful technological capability. Yet there are some very important and unresolved issues concerning remote sensing. Who controls it? What is being sensed? Does the area being scanned have the opportunity to have full use of the data, or does someone else have access to it? Fundamental issues of national sovereignty are at stake.

Then there is the issue of labor. There are those who believe that there are no serious problems associated with the introduction of the new information technologies. But

can you tell working people displaced by automatic processes that the new division of labor will benefit them, that their standard of living eventually will improve?

We are experiencing now an updated version of what went on 200 years ago in the industrializing process in England. In the first industrial revolution we know who paid the cost. In the present one, who will pay the cost? Will there be any protection for those who are directly in the road of the onrushing changes? Should these changes proceed before it is decided on the allocation of the burdens and benefits?

Finally, we must remember that communication is not the casual agent in economic development. Much more important is what Third World countries do with information; how they restructure their economies; how they reduce inequality. To suggest that communication alone is somehow the sole means by which these necessary changes can occur, is getting matters confused. The United States should provide the definitive evidence on this. There is an enormous volume of information and communication channels in the U.S. No one believes that the problems and crises that afflict America are being overcome by the existence of its communication system. If anything, many feel the opposite.

What we are really saying is something quite different. Meaningful information, that permits people to know their actual conditions and to act on them, remains in scarce supply, however much talk there is of an "information age." But this is a social matter. Focusing on the technical features of the new information technologies, diverts attention from the underlying realities. The class structure of Western societies makes it inevitable that the new information technologies are available to the already-privileged and powerful. What is happening is the gap between the rich and the poor is being fortified with a new force, that of information. The more the less industrialized countries, therefore, adopt sophisticated communication technologies, without first changing drastically their internal social orders, the greater their external dependency and the deeper their internal equality will grow.

NEW TECHNOLOGIES AND THE THIRD WORLD - A "DISTRIBUTION OF SOCIAL BENEFITS"?

CEES J HAMELINK

I work at the Institute of Social Studies in Den Haag where we basically deal with economic and political problems of developing countries. Recently we moved into communications for a number of reasons, and we dealt particularly with computer, telecommunication and video technology, and various interfaces. We did that, because we found that these new technologies will really help the problems of developing countries.

Secondly, there is an international political climate that corroborates this. You find this, for example, in Unesco. In its international programme for the development of communication, there is a strong emphasis on the transfer of communication technology as a means to help solve communication problems of developing countries.

Thirdly, there is a number of large transnational corporations that do a tremendous amount of business promotion for the advanced information technology problems in developing countries.

These are some of the reasons why our institute has become interested and why we have set up a rather elaborate research effort over the next few years, with case studies in Mexico, Chile, Brazil, Ivory Coast, Zimbabwe, Kenya, Indonesia and Malaysia.

Then we have to look at the structure and patterns of development in the international market for advanced computer, telecommunication and video technologies. It is a highly oligopolised market with only a few exporters and a tremendous amount of imports. In 1980 that whole market for these three different technologies amounted to 16 per cent of total world trade. It is oligopolised because 48 per cent of that market in 1980 was taken by the US, 29 per cent by Western Europe and 9 per cent by Japan.

In some areas over the past 20 years, there has been a slight increase in exports from developing countries, but that is hardly noticeable. If you look at the past 20 years, between 1962 and 1982, the increase in exports overall in world trade in telecommunication, computer and video equipment has been from 2.9 per cent in 1962 to roughly 7 per cent this year.

We have seen some rapid increases in exports from developing countries in certain areas. If you take, for example, telecommunication equipment or if you take electronic components, between 1966 and 1975 imports by OECD countries from developing countries in electronic components have increased from a 3.5 per cent in 1966 to 18 per cent in 1975; but if you study it a little closer, 90 per cent of those imports came from eight countries, mainly Mexico, Brazil, Hong Kong, Singapore and Taiwan.

Also, more than 80 per cent of the transactions between these eight countries and the OECD, are all intra-firm transactions, all transactions within large transnational corporations, basically, dealings between headquarters in Western Europe, USA and the off-shore production or assembly operations in those eight countries.

In this electronics field we find something which is quite different from textiles, or steel, because the investment costs per labour are so minimal in electronics, that any corporation can easily close its production line at any time and transfer it out of the country.

What about the "distribution of social benefits"? If a developing country decides to introduce these technologies who is going to benefit? Which social groups will benefit more from it? Where will the political, economic and cultural benefits go?

Looking at a number of studies that have been done, say roughly 20 years ago when many developing countries introduced telephone and telex equipment, in almost none of the cases studied, have the defined objectives of national governments been met. Usually, the objectives were a better distribution of income in the country or a decentralisation of governmental administration. In all these cases where these technologies were introduced, those objectives have not been met.

And if one looks at the major beneficiaries of information technologies they were usually three groups - first, the foreign suppliers of the equipment and second, the financiers, because most of the governments ran quite quickly into tremendous balance of payment problems. So they had to borrow on the international market. The World Bank, particularly, has been very scarce in funding telecommunication projects. It is only one per cent of its overall funding of development projects. It has a very low priority. So most of that money has come from private commercial bank, from banking consortiums like chase Manhattan and City Bank.

The third problem was that the group that had benefitted most from the inroduction of such technologies was a local administrative elite. People who were close to the national administration, very often military people. They did benefit most from the new technologies.

Two more points. One deals with the whole question of transfer of technology. Actually over the past decade, there has been no transfer of technology. Most of that which was transferred were just technical products, and not neccessarily that part which is really the knowledge part. But there has been, interestingly, a very strong reverse transfer of technology; there is something of a brain drain from the developing countries to the developed world. You only have to walk around in a laboratory in Silicon Valley to discover that some of the main engineers, much of the brains, come particularly from South East Asion countries.

We are particularly worried about these developments, because one of the major projects that our institute deals with is the international division of labour, and our institute has belonged to those groups that believe in the so-called lima target - which meant that by the year 2000, developing countries could have 25 per cent of the world's industrial manufacturing output.

But we see now that the clock is turning back. Many of these industries, like textiles for example, are now planning to go back to the North. Basically, because highly advanced information technology in the form of micro-electronics will make wage costs no langer a real

decisive factor. Still, for the time being, a lot of particular micro-electronics production is being done in developing countries, and one might rightfully raise the question "is that not going to benefit them?"

We answer that particular question with hesitation because much of the work in micro-electronics production is only one specific part of the whole process. Micro-electronics, especially chips production, is a very integrated process in which particular parts of the production can be done at particular places. Only those particular parts of the production process that need very low skilled labour will be done in developing countries, and it doesn't leave them with an awful lot of transferred knowledge in that particular field.

Secondly, it doesn't help their unemployment problem. It is not a traditional labour force that is used, it is a totally new labour force, particularly women from peasant families between 18 and 24 who are now being used. In the free trade zones in developing countries, some 200,000 women between these ages are working, living together under miserable conditions in crowded barracks, and as soon as their usefulness is over, they are simply dumped on the labour market, with very little prospects for further careers.

DISCUSSION ON CEES J HAMELINK'S PAPER

Since the change in the directorate of the World Bank there is a lot more interest now in telecommunication investment.

Mexico and Brazil probably have more of a coherent policy on information in telecommunication than the United States at the moment. The knowledge, infrastructure, organisation, use and connection into the networks of kowledge internationally, is perhaps more important than setting up a particular machine.

There is great growth potential built into the new technology, and possibly a way out of the present economic recession - but what lies very far behind the microchip and the satellites, are the international political institutions for dealing with these negotiations.

We should consider whether or not existing institutions like the ITU, the GATT, various institutions of the UN and the OEDC are adequate to deal with certain of the questions they deal with, including direct broadcast satellites, remote sensing access to the space and spectum, transborder data flow and international property organisation with international copyright.

Research questions that have to be asked are whether or not these organisations in their existing forms are viable. If they are not, what kind of changes need to be made in them. The political and economic debate about the new technologies, whether it is covering satellites, transborder data flow, copyright or spectrum and space access, must be directly related to other areas in the policy arena, as well as the fact that academics are finding it very difficult to establish an international regime to deal with these problems, that is, in the finance, trade and energy areas.

We need to move some kind of a new regime to deal with, and which anticipates, the changes in the technology for dealing with these very important international issues.

In the case of several countries, both in Latin America and the Middle East, their problem is not that they don't have experts or even independent individuals, even organisation to make that assessment. The problem is one of political decision-making.

A far more democratic application of the idea of technology assessment is necessary.

The people that we are training in our courses are not necessarily the chief engineers of any given country or the heads of the PTT, just the people on the political and diplomatic level. It is necessary to arouse their awareness of these problems and give them at least a minimum capability to be able to deal with technique. The technocrats in the developing countries may easily overrule some of the politicians, because they happen to have all the knowledge.

We are drowning in information; it really is an overkill. We keep talking about telecommunications but we are not differentiating between the individual and business. Our problem is essentially a matter of teaching self-selection.

We must not find ourselves in the position of the scientist who set out to invent the universal solvent, and did so - but the problem was that he couldn't find a bottle to keep it in.

THE NEW COMMUNICATION TECHNOLOGIES AND RESEARCH

JAMES HALLORAN

Many people today express both interest and concern about the possibilities, implications and consequences of the new communication technologies in western industrialized countries. Unfortunately, not as much attention is given to political, social and cultural considerations as to economic considerations, and even these tend to be defined and interpreted rather narrowly. Rarely does the debate penetrate below or beyond the surface concerns of technological capitalism. It is not that the technological and economic aspects of the problem should be ignored, but they represent only two elements in a much wider, more complex social, human situation.

All too frequently our exchanges are confined to such categories as "consumers", "units", "users", "subscribers", "potential purchasers", "households", etc. Admittedly, 1984 is almost with us, so perhaps we are preparing for a time when "human beings", "persons", "individuals", "families" and "homes" have become terms with little more than historical interest.

I seek here to redress the imbalance and give some attention to sicial and moral concerns; in fact, to the quality of life, and how this may be influence by technological deveopments in communications.

To do this I must make a distinction between commercially oriented market research, which is sometimes mistakenly regarded as social scientific and which is essentially intended to serve the system, and my type of research, which may be critical of the system and which, although focussing from time to time on media and technology, never does this to the exclusion of other institutions, relationships and processes. Media developments and operations, and technological change and innovation are studied within the wider social context.

Due attention is given to finance, ownership, control, organisation, structure and operations, as well as to the wider political, social, moral and cultural implications of the innovations and developments. Consequently, anything I proceed to say about research developments and possibilities should be seen within this framework.

Mass Communication Research - and this term is used rather generally and comprehensively here - has a relatively short history but, like all research, although perhaps even more than most, has been shaped and fashioned by a variety of political and commercial forces.

This has led to a situation where, even now, the relatively small amount of research which is not commercially or administratively oriented rarely has the opportunity to be constructively critical, or to ask how social/communication needs may be most effectively met by the application of new technology.

The research is often of the fire brigade or ambulance variety, i.e. called upon in a post-hoc situation to deal with what is considered as accident, danger or disaster. Media/violence research is a typical example.

We have heard about various forms of technological, organisational and developmental research carried out before technological innovation or application, in an attempt to ensure maximum efficiency, utilisation, profitability, etc. Decisions with regard to such innovations and developments are frequently made on the basis of predictions and anticipations about efficiency and profitability which stem from the results of these forms of research and enquiry. Rarely, if ever, are such decisions made on the basis of research results about the possible human and social consequences of the developments and innovations.

This is not surprising, for such results are not available - the necessary research has not been carried out. History is full of examples where social problems may have been avoided if decisions about media/communication policy and development had been based on the results of research.

What, by implication, I am suggesting, may appear naive to those who regard it as inevitable that commercial and narrowly defined political considerations must always take precedence and, I must admit, from what I have observed in most of the societies I am familiar with, that in the absence of radical political/economic change, there is little reason for optimism.

Nevertheless, I still feel I must question the system, its current practices and prevailing philosophy, particularly the tautological thinking, not always clearly articulated, which equates the "good of the individual", rarely defined and never independently assessed, with the maintenance and development of existing structures, institutions, and/or the vested interests associated with market forces.

At the risk of over-simplification, let me suggest that media/communication decisions are usually made with regard to profitability, political expediency or institutional maintenance, and that in some cases these could represent one and the same thing, and without the benefit of reliable information about communication needs. They are then frequently rationalised in terms of ill-defined, rarely assessed notions of public welfare and individual benefit. I would also want to ask, need it always be like this?

I need to go no further than my own country to illustrate this point and, hopefully, show good cause for my concern. Great Britain is a country which, quite rightly, used to pride itself on benefiting from public service broadcasting. But now, as it has become cheapened and brutalised by current political and economic policies, future communication developments like cable, are seen primarily, if not solely, in terms of profits for the operators, creation of jobs in the new technological industries, the development of these industries, exports and so on.

Whether expectations in this connection are justified or the plans for development well conceived is another matter, actually it seems unlikely that they are, but the main point is that, from my point of view, these criteria are not adequate, and policies and plans have not been formulated in terms of human social criteria.

That this is true is abundantly clear from a recent report on the future of cable, from "three wise men" who were commissioned by the British Government to examine the cable situation and make recommendations. It is also evident from the way in which a limited cable experiment with pay-TV has been developed.

The "susscess" of this "experiment" is being judged in terms of profits derived from watching old films on television, not in terms of service to the community. This was made perfectly clear to us by the appropiate government department when we enquired about the possibility of carrying out research on the community potential and social implications of this "experiment". There was no interest in "social implications".

Ideally, what criteria should we use? Given the opportunity and the necessary support, what questions would we wish to assk in research before decisions were made about the introduction and development of the new communication technology?

The list of research questions, reflecting social concerns, which I now present should not be seen as comprehensive. Neither are the questions presented in any order of priority. However, the list should provide a reasonably accurat indication of the type of research approach I would advocate.

1. Will the nature and scale of the "new communication operation" promote tencencies towards centralisation/metropolitanisation of information sources?

2. What changes, if any, will there be in information seeking behaviour by different groups in the population? Will people generally be more informed?

3. Will new audiences emerge for both information and entertainment?

4. Will new educational needs emerge and, if so, how will they be met?

5. Will increased privatisation, greater concentration of home or family-based activities stem from the changes?

6. Will the changes lead to reduced interpersonal relationships and more man/machine interactions bringing physical togetherness without creating social communities?

7. What changes will there be in the relationship of the media to other institutions like families and schools, and how might the media relate to the complementary functions of support systms with regard to ecucation, social services and social action?

8. How will the changes be applied in relation to agricultural developments, medical and health services and family planning of programmes?

9. Will there be an increase or decrease in the gap between the information rich and the information poor, and the gap between the leisure rich and the leisure poor? Will there be more for those who already have all the facilities, the knowledge where to go, what to do, etc.? Will we see the further development of elites - of those who already have an advantage in opportunites, skills and competence?

10. Will consumerism be facilitated, together with a further reliance on commercial production? Will needs be "created" which can only be met by increased production - a form of self-fulfilment prophecy?

11. What about the question of dependency? Will the situation develop internationally in such a way that, on the international scene, Third World countries become increasingly dependent, as on the national scene "third division people" become more dependent and deprived?

12. Will the innovations, and the media operations generally, impede or facilitate the development of a national identity and national culture and language?

13. The relationship between multiplicity and diversity in both provision and use is vitally important, particularly in view of some of the claims made by those who favour innovation. Will there be more variety, more real choice, or will commercial pressures, sooner or later, lead to a situation where more means more of the same thing?

14. Similarly, questions should be asked about changes in access, participation, involvement, democratisation, etc. The management and editorial funtions need not to be excluded from this examination, which should go well from this examination, which should go well beyond an examination of token representations.

15. Will the innovations lead to changes in community, local or regional identification at both attitudinal and behavioural levels?

16. How will the new technology interact with traditional forms of communication, and what will the implications be for opinion leaders and gatekeepers?

17. Will the special needs of minority and temporary membership groups be more effectively met as a result of the increase in possibilities, and will it be easier to mobilise such groups to pursue their own and community interests?

Regrettably, I accept that there is a sense of déjà vu about all this, I posed these sorts of questions, which I considered appropiate to the situation at that time, well over a decade ago. So, as a researcher, I can hardly be satisfied that, as far as actual research projects and programmes are concerned, some of the questions have not even been posed yet, let alone answered.

This is another reminder - should one be needed - that research is not carried out in a social/political vacuum. Research costs money; but money is not often available for those researchers who wish to pose questions in their research which might challenge the beliefs, positions, policies, practices and vested interests of those who, in some way or other, are responsible for media output, and who also control most of the purse strings.

We have been told several times that money is available for research which is seen as likely to serve the system and maintain the status quo. But we have heard nothing about that type of research which may ask awkward questions about the social, moral and cultural implications of media policies and practices.

To strike a somewhat different note, but to return to a point I made earlier, it needs to be emphasised that the media, and innovations and changes in communications, should not be studied in isolation. Amongst other things, they need to be set against the **background of current social** trends and the possible implications and further development of these.

These will differ from country to country. But, again at the risk of over-simplification, an analysis of social trends in some industrialised societies, with particular reference to the family and the possiblity of the close integration of the domestic unit into communication networks, has indicated that a study of developments in communication over the next decade might usefully be carried out within the context outlined bewlow:

1. The movement of work, or certain aspects of it, away from the conventional work place so that it is no longer confined inside specific time/space frameworks, as in the past. With this change, and the developement of work in the home, some degree of overlap may occur between compulsory working time and what hitherto has generally been regarded as free time within the same space. In families where this takes place there would no longer be a clear break between work in the home and outside work. Of course, not all families are in the same position, and the implications will be different in different classes and social groupings. For example, certain groups - usually relatively elite groups - already rely for vital "work" information and communication exchanges on business lunches, cocktail parties, entertainment in the home, weekend social and sporting occasions, and so on.

2. The possibility of a movement away from the school's monopoly of education. This might lead to the development of a widespread phenomenon of self-education, and as genuine "continuing education" for which the family, again, certain types of family could assume responsibility.

3. The gradual reduction of which there are many indications, of investment and ivolvement by the State in the social sector, like health, housing, amenities and education, and the end of the coneption of public and social services, as we have come to know it over the past half century, have been detected in some countries. Where this trend develops it might force people to consider the possibility of finding new ways of managing social relationships, where the emphasis could be on self-organisation, self-supervision and the development of voluntary work and mutual aid systems, based on associative relationships and organisations.

4. The decline of party politics as we have known it, and the development of referenda on specific issues and/or in selcted areas - "commmunity-chest politics". Increasing decentralisation and the growth of pressure groups is another possibility.

5. A change in emphasis from productivity to distribution and sales promotion. This could be accompanied by a change from mass advertising to specific targeted advertising, and an increasing diversification of goods corresponding to a fragmentation of the comsumer population.

6. A challenge to the "oppositional ideas" work and leisure. There is some evidence to suggest that a reduction in compulsory working time which seems inevitable, for one reason or another has never yet resulted in increased leisure for the groups which are not included in formal work. The lot of some women in Western industrial societies might illustrate this in that non-working women have been said to have no real leisure because leisure cannot exist without work. I has been suggested that the belief, that the change and freedom can be achieved through leisure, as conventionally defined, in opposition to work, is mistaken. Leisure itself can only become an interesting activity, with a creative cultural and social dimension, if it stems from, is an extension of, is complementary to, and is essentially related to the main social activity, which is work.

7. The decline not only of the Protestant work ethic, but also of its successor, the materialistic work ethic, and the development of the expressive work ethic, and even the non-work ethic.

8. The alienation of the successful, as increasingly "achievement" is felt not to bring "happiness" has been detected in several countries, as also has an increasing questioning of authority.

It needs to be emphasised that the above points refer to social trends which apply, to a greater or lesser degree, in most industrialised societes.

One of the main preliminary tasks in the research programme which I would recommend would be to identify. Analyse and interpret the relevant social trends in each of the countries being studied, in relation to which communication development would then be examined and its implications assessed. The family offers an exellent focus for this type of reserach, and much of the work could be concentrated on this primary institution.

Let me emphasise that these are just suggestions and examples of the research questions that might be put, and indications of the characteristics of the wider social context within which these major questions ought to be studied.

The formulation and application of a research policy which is based on these principles is the only guarantee we have that the data would be available to inform communication decision-making with a view to meeting communication needs and to making possible the optimum use of the resources available to us.

But even this is not enough for, as mentioned earlier in a different context, information may be a necessity but it is never a sufficient cause of social ambiton. We need the moral commitment and the political/social will to change things, and we must be prepared to work to bring about a closer relationship between needs and provision. Unfortunately, the signs are not good.

In several countries, but particularly in Great Britain, the commercial element predominates more than ever in the execution of ill-defined "communication policies". Provision is still more likely to be geared to what is profitable rather than to what is needed.

DISCUSSION ON JAMES D HALLORAN'S PAPER

In the course of the discussion Halloran added the follwing remarks when answering various questions:

It is not accurate to talk about multiple outlets and services being available for people who live in Western societies - "people" is not a meaningful category. There are people and people. For example, we have 3 million people in Britain who live below the minimum level of subsistence, and 3.5 million unemployed. We should be talking about different groups of people in an essentially differentiated and stratified society in which not just the new media technologies, but the social, political and educational forces generally, are increasingly working towards the production of two world. The gap between the top and the bottom of society has not changed over the last three or four decades to the degree that many appear to believe. There are still marked differences in the skills, competences, facilities and knowledge in different sections of society. Innovations in communications technology could be used to exacerbate this problem by widening the gap.

The signs in my country - and I am sure it is similar in other countries - are that the innovations are being introduced in such a way that the tendencies are for the information and leisure rich to become richer, and for the information and leisure poor to become poorer.

NEW TECHNOLOGIES AND THEIR IMPACT ON RELATIONSHIPS BETWEEN INDUSTRIALIZED COUNTRIES

BERNHARD BLIN

The new technologies in the field of communications are characterised not only by the manifold and increased abilities they embody and by the rapidity possible, but also by the ease with which one can use this still very sophisticated equipment.

What we observe today is an extension of the "electronic audio-visual self services" into homes, which increases the possibilities of access to the knowledge and abilities of communication between persons or between members of one and the same group, irrespective of any borders.

This evolution has considerable effects on the political and economic relationships between the industrialised countries.

I Political Relationships

1. The direct TV-satellites will become a new factor in the political relationships between states to that extent in which the re-

ception of foreign programmes might alter national values and influence domestic and foreign policy by acting upon public opinion. These programmes could also disregard the laws, regulations and rules of conduct governing certain fields, such as for example, the field of advertising. Accordingly, the Council of Europe examines the ways on how to overcome the contradiction between a free circulation and protectionism by encouraging cooperation in the centre of the European audio-visual market area.

2. Diplomacy too finds itself modified by the development of the new means of communication which it can use or tolerate. Independent of the effects of information technologies, propaganda and "disinformation" on public opinion, the diplomatic negotiations will hardly be able to develop isolated from press and public opinion.

Thus the "public" diplomacy seems to become more and more important to the detriment of the "secret" diplomacy. But already today, the means of communication raise diplomatic problems which are dealt with either on a bilateral basis or within the system of the United Nations where one can observe an increasing confrontation of the great dominant ideologies, above all in the East-West and the North-South relationships.

In relation to their economic as well as to their strategic value, the transfers of scientific and technoligical data also raise a political problem for the relationships between states.

3. The treatment of data concerning opinion, attitudes and behaviour of the public in general and circles of "decision-makers" too represents a new factor in the political relationhsips on the national as well as on the international level.

One day the extension of interactive communication systems might enable us to make almost permanent inquiries the results of which, if treated immediately, would serve as a basis for political decisions. The result would be a considerable change in the working methods of our democratic institutions which might give way to a sort of "tele-practice" with manifold consequences which today are still difficult to evaluate.

II Economic Relationships

The development of new communication technologies, in the vertical direction as well as on the horizontal level, might lead to an

industrial concentration just like a concentration of media irrespective of any borders, especially in the regional market area.

In a more general way one has to be prepared for various problems, such as for example:

1. Destabilisation of other media and the market:

   An exploitation of a direct TV-satellite that is financed by means of advertising might absord financial resources to the disadvantage of the daily or periodical written press, published not only in the satellite's country of origin but also in the neighbouring countries which such a satellite can reach with its programmes. Furthermore, the commercials which can be received thanks to the satellite of a neighbouring country might destabilise the national market of consumption by favouring the promotion of foreign products.

   For those countries which do not plan or do not have the means to exploit their own satellite, the economic consequences of such a situation would be alarming since they originate from a subject of foreign affairs.

2. Relevation of new intelligences

   Here too, when comparing one's evolution with that of other countries, one must be prepared for the risk of disequilibrium.

   The home computers or those accessible from a distance allow a more and more individualised education and automatic translations, while the electronic games will produce a new kind of elite, particularly among young people. Indeed, the application and the resources of these technologies could develop intellectual abilities in the field of logical reflections, as well as in the fields of inventive faculties or aesthetic innovation.

   The facilities of sectoral communications, furthermore, increase the rapidity of these procedures by lowering the age and enlarging the base of the circles in which progress is created.

The new ideas and the new solutions will be "amplified" themselves by the media, and the pressure they exert will become more and more important for the evolution of economic structures and international markets. If innovation brings about progress, the result will be an increasing distance to those countries which have similar resources but have not accepted a policy of integrating the new technologies into their economic and social development.

3. Radical changes of our economic structures and working conditions:

The development of communication technologies may lead to forms of decentralisation both in relation to the connections used to the advatage of enterprises, as well as in relation to the direct relationship between consumers and the centres of commercial distribution.

But the interconnection between the business communication centres may also favour an increased decentralisation at the decision-making level.

On the other hand, the general evolution of technologies which will bring about an alteration of both manual and intellectual profesional careers. It is not only a question of a shifting of workers to the third sector, but also of a modification of the tasks of one and the same career.

Indeed, in the course of one and the same life a worker will have to change employment more often in order to fill positions which each time require a new professional qualification.

This situation will lead to new policies of permanent professional training, the plannig of which will be as difficult as indespensable if one ensures the equality of chances for all workers on the occasion of successive selections.

Conclusion

Whether it is this continued professional training or a permanent education for a better integration of men and women into a future "society of communication", the research work should be quickly multiplied with the aid of the resources of social sciences.

With such a perspective it is indeed a question of overcoming the dilemma between isolation and integration of the individual, and of raising the question in terms of solidarity between people as well as between countries.

DISCUSSION ON BERNARD BLIN'S PAPER

Emphasis must be on practical experimentation, to find out how education systems can be improved. How can people be not just educated in the classics but educated towards an information society so that they are going to be usefully and gainfully employed.

The children of unemployed parents are suffering dramatic experiences and it will go on for the rest of their life. Information is part of it, mass media is part of it and we have to do something in the way of studying it and helping to make a transition so that they become gainfully employed.

Why did people never believe that technology had its inherent constraints? Why did they keep saying at conference after conference that technology has no real constraints in itself, it only depends upon who uses it for what purposes? Why did people not learn from a simple fact like the automobile technology?

It does not matter at all whether one uses an automobile in a wise or unwise fashion. That technology has some inherent qualifications and as soon as one starts using it, it simply uses too much energy and it spoils the environment. That is why we could start thinking about inherent constraints in computer technology.

The second question is how easily will we be deceived by the tremendously simple use of that technology? We forgot the fact that it was one of the most complex technologies we have ever had in our hands. Its very complexity goes beyond human control. Why did we never listen to the chief engineer of Stockholm, who said a couple of months ago, if the computer system that deals with the total city administration of Stockholm would break down, there would be no one in the engineering team who would know what the faults would be. It would take over three months to find the fault, because that system is not any longer designed by us, just redesigned by the engineers but only up to a certain point - and then it evolved itself because its complexity was beyond our human engineering capacity.

We should establish more clearly the relationship between technological opportunities and real social needs. Perhaps technology is driving too far, to fast and one needs to see the extent to which the technological possibilities are going to improve our economic life.

One of the largest barrieres towards media improvement is the great suspicion jounalists have of media researchers.

We have to find ways of providing opportunities for better communication and even research projects in which they can both be usefully involved.

Another barrier to media improvement is the lack of communication between users and media workers themselves. There could be useful research into ways of providing some kind of intercommunication process between media users, in which they could explain what they want and need from the media, and the people who work in the media.

COMPUTERS IN TELECOMMUNICATION SERVICES

THILO POHLERT

The teleprocessing of information is nowadays undergoing as decisive change. The swift evolution of technology has resulted in a "explosion" of the means of communication and the rapid increase of news seems to cause a "crisse of information".

According to specialists, computer systems - so called large integrated systems - should in future contribute in a decisive way towards an adequate control of a constantly growing flow of news, the base of information.

There are two specific ways electronics and telecommunication facilities can be put to use in this field:

1. Message Switching System - Computer controlled news editing and distribtion of information.

2. News on Demand - Information Bank Systems to store information into core memory units for instant retrieval and teleprocessing.

Present Situation

The processing of information is nowadays undergoing a decisive change. As a result of the means of communication being coded under the digital system, every item of information is electrically polarised as a positive-negative coupling, i.e. in accordance with the yes-no-dialectic. The various items of information - e.g. a text, a picture or a musical sound - can be coded under the same digital system and broadcast by the same means. The cables are being, and will have to be, designed to carry an ever-growing flow of information. In the future, the use of satellites will vouchsafe radio-transmissions both devoid of any distortion, and ranging between any two points on the earth.

FIGURE 1

Übertragungs-geschwindigkeit (bit/s)	SPEED/CAPACITY BITS/PER SEC.	
Telexnetz und ein Teil der Telegraphenleitungen	PUBLIC TELEXNETWORK	50
Telegraphenleitungen höherer Übertragungsleistung	LEASED TELEGRAPH LINES	100
Telegraphenleitungen mit höchster Übertragungsleistung und Datexnetz	PUBLIC TELEPHONE NETWORK	200
Fernsprechleitungen	LEASED TELEPHONE LINES	1200
Fernsprechleitungen mit besonderen Vorrichtungen	PUBLIC HOTLINE DATA NETWORK	2400
		10 000
Breitbandübertragungswege	LEASED WIDE BAND CIRCUITS	48 000
		240 000

Such spectacular progress does not, however, make editorial work any easier. As a matter of fact, while technical progress makes for more speed (see Fig.1), a closer contact with the news happening and a considerably increased input and ouput of information, it affords no help towards controlling this flow of information. As a result it has been found necessary to resort to electronic devices such as computers in order to direct and channel the spate of news.

Nowadays there are in Federal Germany 600 independent dailies with a total circulation of 22.5 million copies and a number of periodicals, both general and technical, with an aggregate circulation of 78 million copies, a set of figures meaning that items of information are being reproduced 100 million times. These figures, incidentally, include only the printed press, and not book-production, a sector which is growing every bit as quickly, 190,000 new book titles were published last aear. In 5,000 years human knowledge has doubled once; at the present time, in fact, the bulk of information is being doubled:

- every fifth year in electronics;
- every third year in space-research and nuclear energy
- last year 69,000 applications for patents were registered in the Federal Republic of Germany;
- news is being broadcast every 10 minutes;
- every 45 sec one relevant expert's story
- 1 million reports of conferences and industrial records a year; that means:
- 100 000 000 pages or
- 200 000 megabytes

The problem is not, actually, how to acquire information, but how to be in a postion to pinpoint and use really necessary information, both quickly and from every available source.

The times of "I want to know everything" are over; Now it is "I want to know what I need to know".

RETRIEVAL	CHARAC - TERISTICS	USED FOR..
FORMATED R.	SELECTION BY CODE SELECTION BY DESCRIPTOR SELECTOR IN TERMINAL	MESSAGE SWITCHING SELECTED NEWS SERVICE
MENU R.	PREFIXED SEQUENCE OF SEARCH	VIDEOTEXT - TELE - TEXT
FREE DIALOGUE R.	NATURAL LANGUAGE SLUGS - CATCHWORDS DIALOGUE WITH SYSTEM	NEWS DATA BANK LIBRARY SEARCH INFORMATION BANK

FIGURE 2

69

As a result of the means of communication being coded under the digital system every time of information, text, photo and sound can be coded under the same digital system and broadcast by the same means.

The cables are being designed together with satellite channels to carry the ever-growing flow of information between any point of the earth.

The result is INFORMATION OVERKILL and the CRISIS OF INFORMATION I have mentioned.

This is why, in the search for adequate information systems, more and more importance must be given to computerised systems wherever information has to be handled.

There are two specific ways electronics can be put to use in this field:

1. **Computer controlled news distribution for channeling the flow of information** (message switching). (see Fig. 3)

   This equipment analyses priorities by codes, selects and stores information for up to one week.

2. **Data Bank System**

   These make dialogue between editor and machine possible. Editors can find and retrieve information, regardless of the chronological order in which they were stored and retrieve the fully backgrounded data at the exact moment it is required, and instantly.

   In simple technical language this is basically a data processing computer set to run on a specific but prefixed programme in real time.

   This is how it runs in practice:

   The editor who prepares the basic material sees to it that it is immediately coded. He determines its destination, its priority, its distribution, whether it is to be widely disseminated or only to specific recipients. To further facilitate routing and handling, each item is immediately given a distictive "slug" to indicate what it is all about, i.e. a foreign news item, a domestic item, sports, science or other background material.

   An additional "routing code" sees to it that the material is only routed to specific persons or desks at the Central Office.

MESSAGE SWITCHING SYSTEM

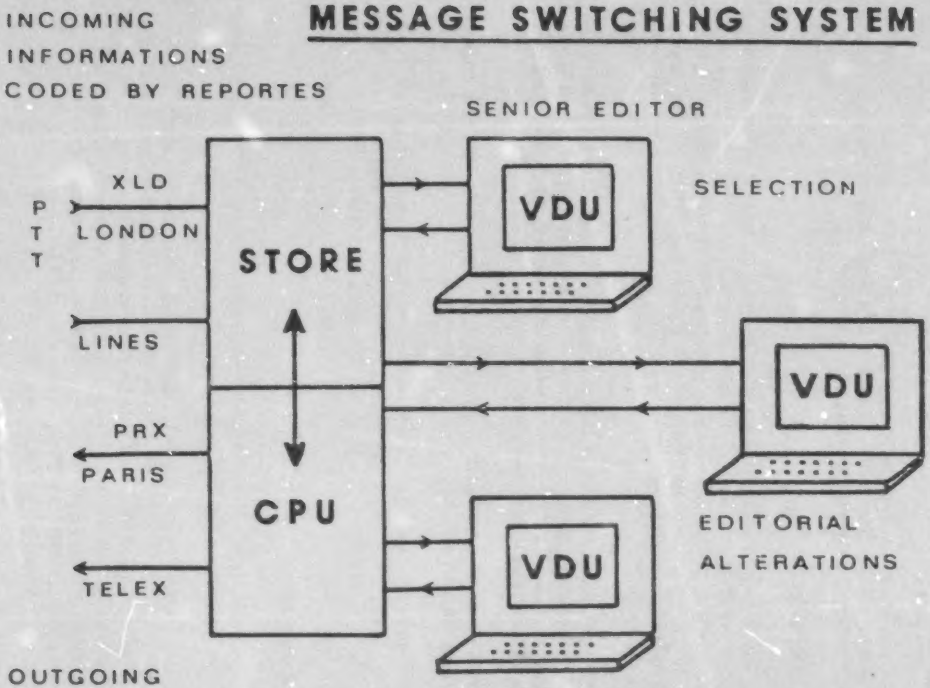


FIGURE 3

In the next phase the coded items are relayed to the Central Office where the "bits" (binary digits) are passed through the data processor, in fact an electronic marshalling yard which in turn analyses its routing code before relaying it into the so-called external storage, when it can be recalled, or reports itself according to it's priority.

The items then is fed into the principal "core memory unit" in accordance with a prescribed programme and only then is it routed to the recipient editorial desks, for processing.

The editors job is simple:

Using his Vidio screen he can run off the inbound material, scan it, select what he needs, then edit it into the format he requires. Before moving it on, the item is given yet a further identification, a so-called "storage location" which helps "park" it in the appropriate unit. Now the item is ready for transmittal to the ultimate "client recipient".

Modern technology enables the equipment to handle a great number of functions, such as editing of news, distribution of news, storage of news, retrieval of news, searching of news, selection of news, tabulation of sports events.

Editorial desk of the future will be a far cry from the old paper, pencil, paste and scissors days. (see Fig.4)

Editors will receive their material on cathode ray tube, i.e. vido screen. They will be able to scan, select, correct and edit the item right on the screen by using an electric keyboard rather than a pencil.

Concept of data bank

What is a data bank? What would such a plant cost? Who is in a position to erect such a plant?

The bare stocking of data in electronic "memories" does not yet make a "data bank" in the sense of an electronic information and documentation centre. A further requirement, indeed, is that all data stocked in the system should be ordered and organised within the "memories" or electronic libraries in such a way that they can be pinpointed with minimum effort, complete accuracy and no possibility of ambiguity. (See Fig. 5)

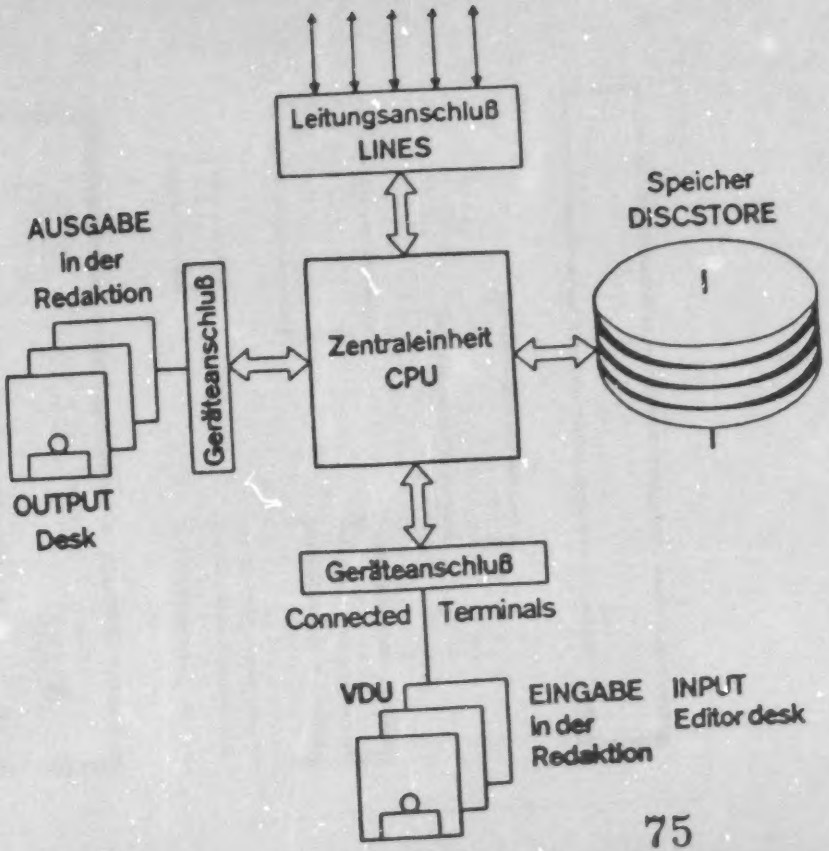
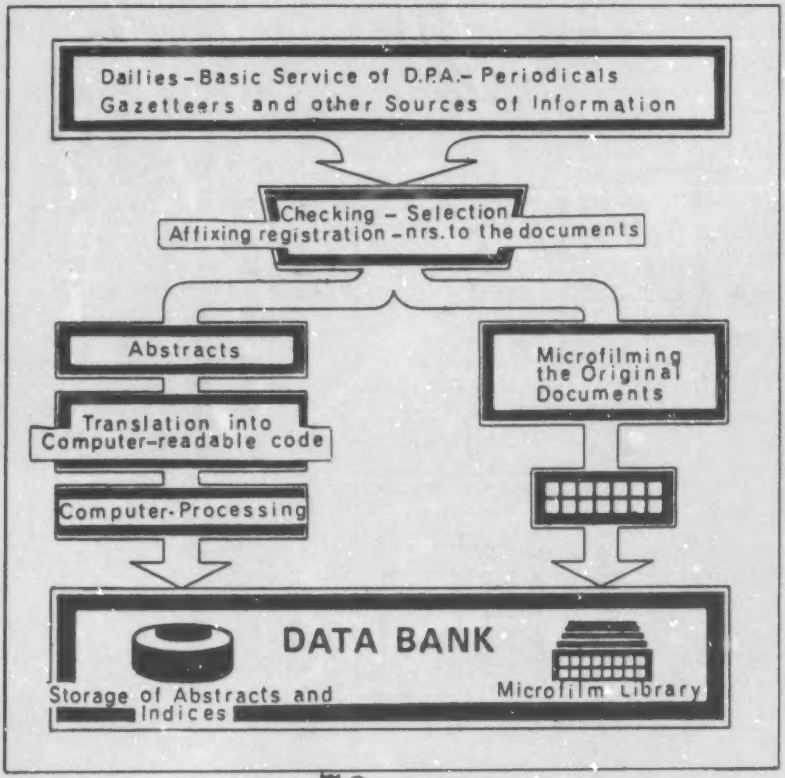

Leitungsanschluß
LINES
Speicher
DISCSTORE
AUSGABE
In der
Redaktion
Geräteanschluß
Zentraleinheit
CPU
OUTPUT
Desk
Geräteanschluß
Connected
Terminals
VDU
EINGABE
In der
Redaktion
INPUT
Editor desk

FIGURE 4

FIGURE 5

Set-Up of the Data Bank



Indeed, the very notion of a data bank implies a system of wide-ranging "memories" ot be centrally governed and processed with a view to unlimited growth. Any such bank should, in any specific section, include both historical data and fresh items of information. In addition to this, it should meet at least the following reqirements:

- Access to stocked data should be possible directly and without any time-consuming selection-process. Moreover, the procedure of such access should be based exclusively on location "code-words".

- At any moment and without the system having to be modified, provision should be made for any increase of the flow and updating of information, while all obsolete information should be "written-off".

- The compatibility of the existing fund of information should be coordinated with other computerised information banks.

Criteria for the efficient working of the computer

The time taken for finding information is very impressive. It is calculated in "nano seconds", a unit so infinitesimally brief that the only way to illustrate it would be to compare the elapse of one second in time with the passage of 33 years. This obviously justifies the cost of the operation.

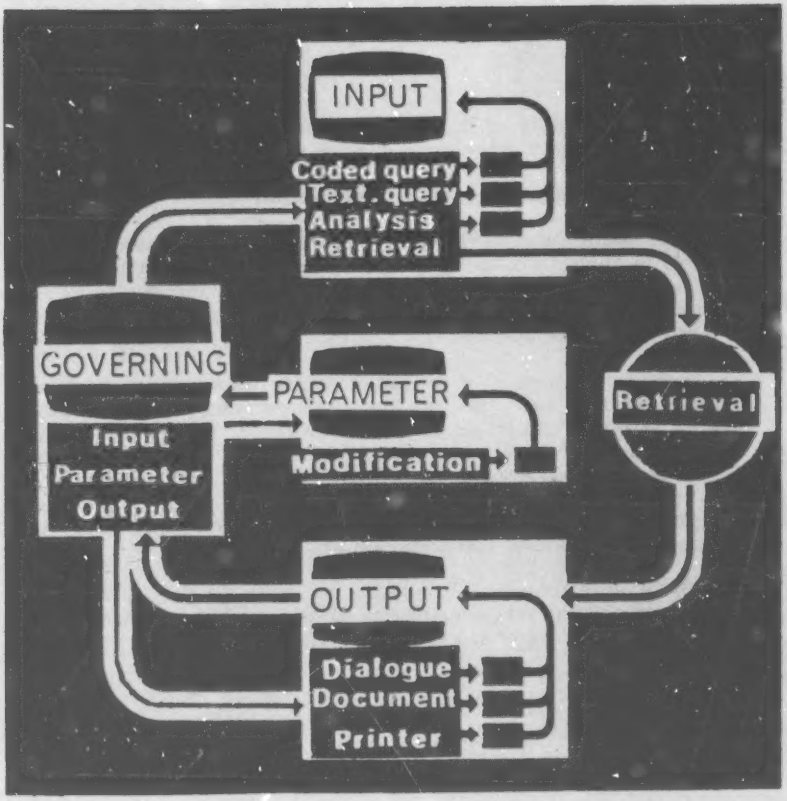
The specific feature of a computer lies in its capacity, to take a logical decision in terms of the yes-no-dialectic. The digital-system impulses fed into a computer - whether they correspond to figures, signs or letters - can usefully be processed by the computer under various forms and within an incredibly short time.

Computer systems can "read", classify and link data. They can compute, store, select and deliver them.

For these reasons any EDP system can be a singularly adequate help in processing large quantities of news, while assisting in the efficient pinpointing of stocked information. (See Fig.6).

FIGURE 6

Working Plan of the Retrieval System



We make the following distinction between electronic retrieval systems:

- "Reference Retrieval": Where to find this (book-index)?
- "Document Retrieval" : The document is located
- "Fact Retrieval" : Factual elements from a data bank

A preprequisite for efficiency is that a microfilm system should be integrated into the whole, to enable the editorial user to get at the original documents. The abstracts or slugs are being stored and kept avaible on magnetic records, while both longer texts and the original documents are stored in the microfilm library. On request, the computer is to supply the reference numbers to retrieve the microfilms carrying the corresponding original documents.

It is possible to feed such a data bank from a wide range of sources, including, for instance, TV and telephoto-reveivers, teletypes, telephone networks or microfilm-enlargement apparatus. Even while taking up a minimum of room, the whole of the microfilm library of the data bank can very swiftly be made available to the users. As a matter of fact, a single drawer in a normal-size desk could house the entire archives of millions of informations per microfiche.

The working and output of a data bank should be regulated, both specifically and individually, to meet the requirements of the customer/editorial offices. In addition, this output should, as far as possible, be made immune against repetitions, so that the dialogued transmissions could be made with a maximum of speed and accuracy.

Communication is very expensive still. More or less all PTT's subsidise other services, i.e. letter, mail, parcels by line tariffs. On the other hand the relative costs for users of electronical systems decrease tremendously over lapsed time.

Set-up of the data bank

The information system chiefly makes use of the three, complementary means of data-st[illegible]e, viz:

- a high-speed storage for hot news in full text;
- a microfilm library carrying copies of all original documents and items of news (in the long run to be replaced by Laser video disc systems);

- a store of magnetic discs. The discs carrying - through direct inscription by the computer - abstracts of the original documents and index-contents.

These indices enable one swiftly and accurately to retrieve the desired information. In order to grasp clearly the set-up of these "memories", and thus of the data bank, it may be useful briefly to follow the course of a document through the bank.

In the DPA archives, the documents, once selected in accordance with set criteria in order to be stocked, are given classification numbers. A microfilm of the original document is also made and classified in the library under the corresponding number.

These descriptions are then translated into computer-readable code by data-acquisition machines.

Processing by computer

The main task of the computer now consists of evolving indices, which - just as book-indices - will make it possible accurately and swiftly to retrieve the desired information. The factors needed for these indices are extracted from the data supplied with the help of the computer. In this connection the indexation of "freely" written texts is of particular importance.

The problem inherent in the machine-processing of free text lies essentially in the fact that, in such texts, the meaning of words and verbal groups does not result from a fixed order as, for instance, in a personal index-card (name, address, etc). In a "free" text, the words are interrelated in a complex way. Now the human mind grasps such links intuitively, but in the present state of the art it is hardly likely that, within the foreseeable future, a machine could process such texts.

For this reason, such documents must be reduced into factors which the computer can identify and process. To achieve this, symbols - such as isolated words or word-fragments - are extracted from the ingoing documents with the help of the machine. The same or a similar procedure should be followed when requesting data.

Working of the data bank

Questions or requests to the data-bank, or more precisely to its text-component, can be formulated in natural language, just as in

the case of document-indexation. The reply-documents are statistically evaluated and classified by the computer, so that the first documents to be delivered are those which must closely overlap with the question.

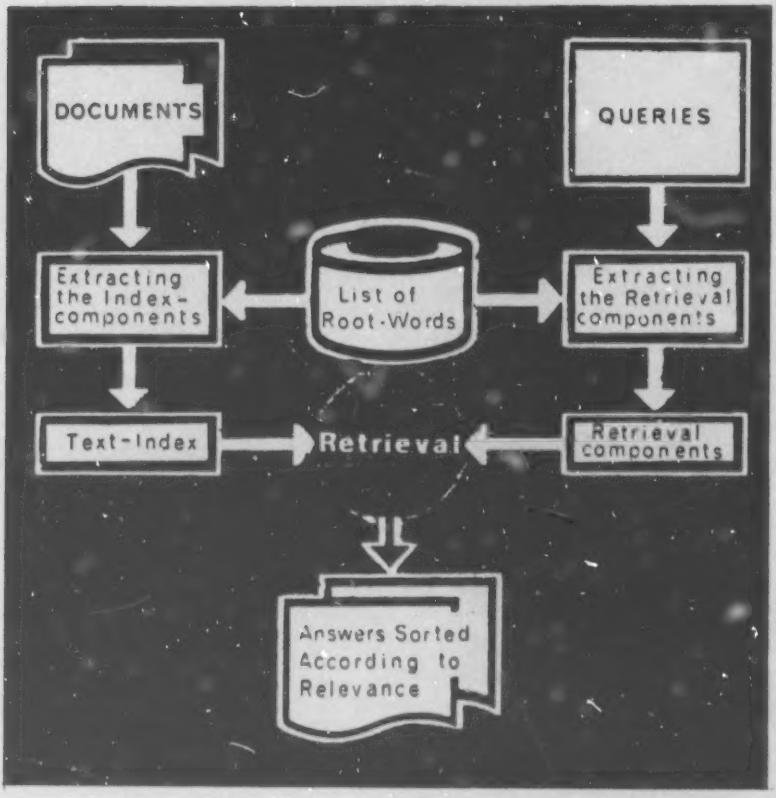
In our case, the dialogue with the data bank takes place on a video screen, while both questions and the required instructions to the computer are formulated on a typewriter-like keyboard.

The queries are fed into the computer under the form of logical utterance. The system then seeks the document corresponding with this notion.

(See Fig. 7)

FIGURE 7

Set-Up of the Data Bank and Processing of the Queries



The next steps

1. more databanks - photos for everybody
2. digital photo transmission
3. real time systems (Sperry Univac)
4. interactive systems
5. intelligent terminal and intelligent elctronical memories
6. revolution in portable terminals

Species of information on demand

- selected news on prefixed demand
- formated info-call
- press-photo bank
- news data bank
- information bank (archive)
- videotext news by TV-set

Nevertheless despite all progress in this field one decisive frontier still remains: a restriction in fully satisfactory, automatic text analysis and indexing.

Whether or when the techniques for automatic language processing will become sophisticated enough, is a question of time and money. The answer will definitely be expensive but possible.

THE ELECTRONIC TECHNOLOGIES MARKETES IN THE EIGHTIES

KARL JOSEPH FRENSCH

The first topic (see fig. 1) is the market trend for telecommunications. It is and will continue to be a growth sector. The growth of the number of existing telephones, for instance, as an indicator for the market volume has been six to seven per cent in the past. In 1980 it fell down a little bit to 5.3 per cent and the growth is somewhat less now because of the economical recession throughout the world. But in any case the growth rate of telecommunications has always been nearly independent of recessions. I think this derives from the fact that telecommunication is always necessary, in good and bad times, and therefore telecommunications administrations or operating companies will earn money throughout the time and can also buy new equipment.

In the market for telecommunications we have to distinguish between industrial and developing countries. Developing countries have a big backlog demand, whereas industrial countries are now approaching saturation in their communication networks. There are some opposite factors as well: The industrial countries have little demand for new subscriber connections, more demand for replacement of old equip-

The telecommunications market from an industrial viewpoint

1. The market for telecommunications will continue to be a growth sector

2. The market for distributed communication is determined by the terminals (retailers), the market for bidirectional communication by the infrastructure (PTT's)

3. Export opportunities of telecommunication industries are regionally limited

4. The task of telecommunication in the future is to provide
   - fast and cheap access to drastically increasing quantity of information
   - more "complete" communication, i.e. multifunctional telecommunication

5. Modern technologies make a fast, universal communications network possible
   - VLSI, cellular design
   - optical fibre systems
   - CHILL

6. A narrowband ISDN (Integrated Services Digital Network), completed to a broadband ISDN, is the optimal and economical solution for the future

7. The transition to the ISDN of the future should be harmonized worldwide

Fig.1

ment and growing demand for new services. And the developing countries don't need replacement, but large quantities of new equipment.

As the production of telecommunications technology is mainly concentrated in the industrial countries and they have capacities too high for their own demand, the telecommunications industries are competing strongly for the developing countries as new markets. The difficulty is that developing countries have great problems with the financing of their projects.

The second topic is the **structure of the telecommunications market** (see fig. 2). In total it amounts to 460 billion DM 220 billion for bidirectional communications and 240 billion for distributive communications.

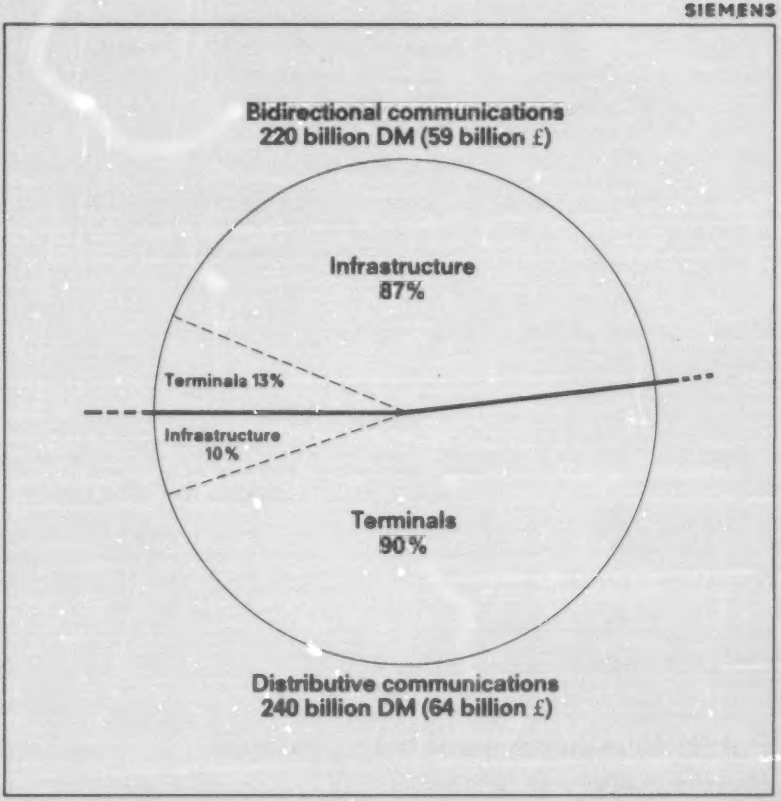
Bidirectional communication is telephony, text, data and facsimile transmission. This is communication between two partners, between everybody and everybody. The distributive communication is mainly represented by radio and television, which is a communication from one centre to everybody. We see that the termainals represent the biggest market share in the sector of distributive communications, whereas the technology for the infrastructure - i.e. the network - dominates in the bidirectional communication.

With respect to the catchwords "telecommunications monopoly" and "open market" we have to consider that the terminals are a market for private persons as purchaser, and retailers and industries with high production capacity as suppliers.

This is quite different to the market situation for network equipment. Networks are installed by post administrations or operating companies, which act like a monopoly in a country. This fact is often criticised as an obstacle against an open market. Here we take the view that monopolies or monopoly like institutions should have the responsibility for the communication network in their country. It is in the interest of the customers to have country-covering, compatible services. These can better be provided by monopolies rather than by competing private companies.

Figure 3 shows the **export opportunities of telecommunications industries** at Siemens, see export opportunities in the sector of public switching technologies for communications. 28 per cent of the total world market are accessible. This is Germany itself, of course, and - according to our definition - other countries with no national telecommunications company. Then there is 8 per cent of the world market which is difficult of access; this refers - in our definition - to countries with two or more telecommunication companies. And finally we

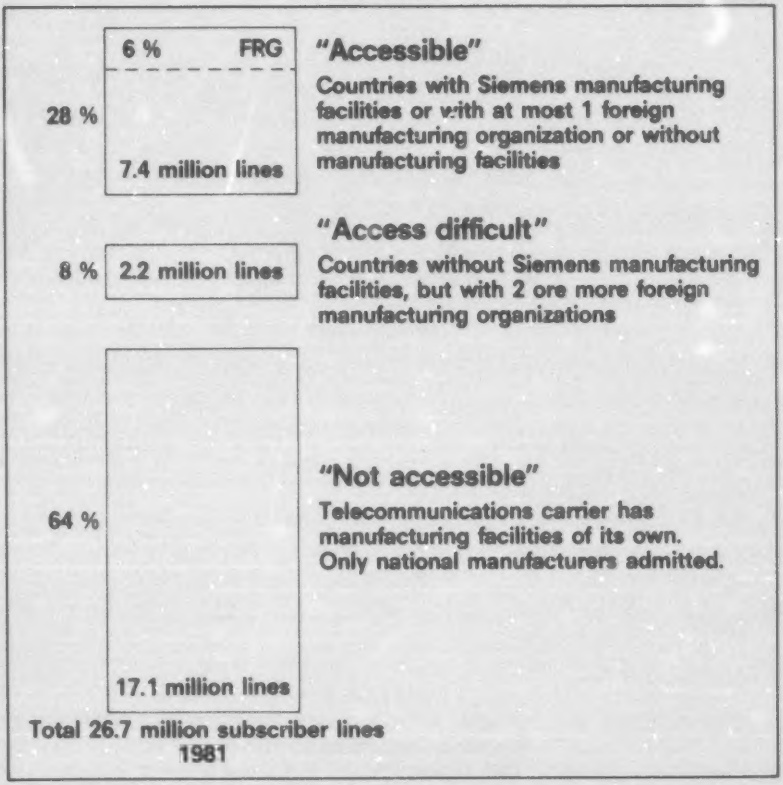
SIEMENS



Telecommunications world market 1982
460 billion DM (123 billion £)

Fig. 2

SIEMENS


6 %
FRG
28 %
7.4 million lines
"Accessible"
Countries with Siemens manufacturing facilities or with at most 1 foreign manufacturing organization or without manufacturing facilities
"Access difficult"
8 %
2.2 million lines
Countries without Siemens manufacturing facilities, but with 2 ore more foreign manufacturing organizations
"Not accessible"
64 %
Telecommunications carrier has manufacturing facilities of its own. Only national manufacturers admitted.
17.1 million lines
Total 26.7 million subscriber lines
1981

Public telephone switching systems

Fig. 3

Market accessibility for Siemens

have 64 per cent of the world market which is not accessible. These are the big industrial countries having their own telecommunications industry.

Another problem regarding export opportunities is that the telecommunication market is distorted to some extent, because industries have more or less support from their government, for instance subsidies for the technical development of products. In the Federal Republic of Germany this is not really the case.

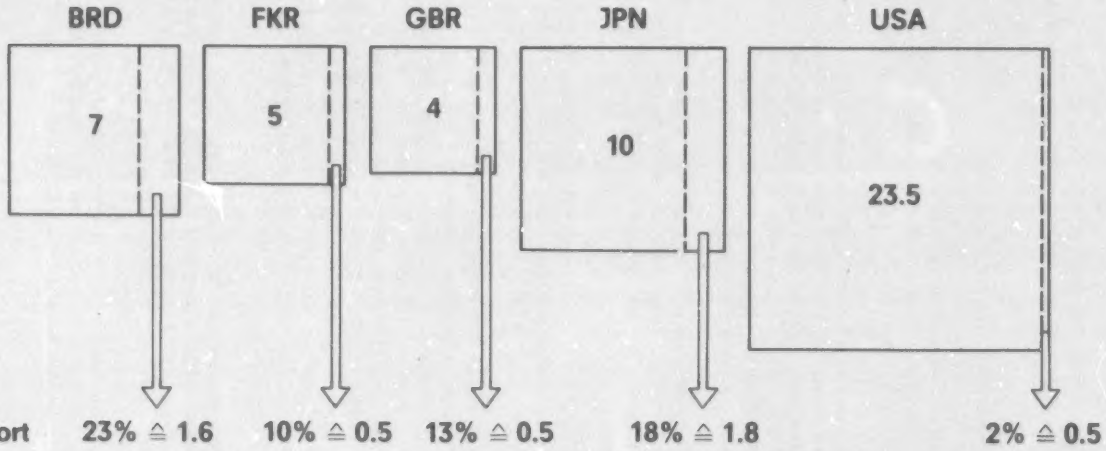
With regard to the market situation, we have a partly open telecommunication market in Germany. The customer can for instance buy terminals (text and facsimile terminals) and PABSs from domestic and foreign companies as well. The public communication network equipment, however, is mainly supplied by German companies or companies manufacturing in Germany respectively.

The German Bundespost has no restrictions on import. There should be the possibility to export and import, vice versa. This has always been a great difficulty and will probably remain difficult in the future.

The Bundespost buys some telecommunication equipment from foreign companies, e.g. a packet switching system, some types of Modems, facsimile terminals etc. But in total the import share is rather small.

Nevertheless, the Federal Republic of Germany has a relatively high share of export in communications equipment, namely 23 per cent (see fig. 4); France has a share of ten per cent; Great Britain 13 per cent; Japan 18 per cent and the United States two per cent. The very low export share of the United States derives from the fact, that the US telecommunication market is a very big market in itself, so that additional export was not necessary for an economical production of the industry. This is a predominant situation for the United States market. But, as you know, the United States industry is now going to increase the export activities intensively.

The task of **telecommunication** in the future is to provide fast and cheap **access to drastically increasing quantity of information.** Figure 5 shows that the quantity of information has grown extensively from about 10^7 characters in early historical time up to about 10^{15} at present and will grow to about 10^{16} in the year 2000. On the other hand the memory volume decreases very steeply and becomes cheaper. In order to make use of this big volume of information we need an advanced communications technology to access this volume of information.



World production DM 72.3 billions, thereof 12% import/export

Export of public communication network equipment

Fig. 4

In billions of DM 1981

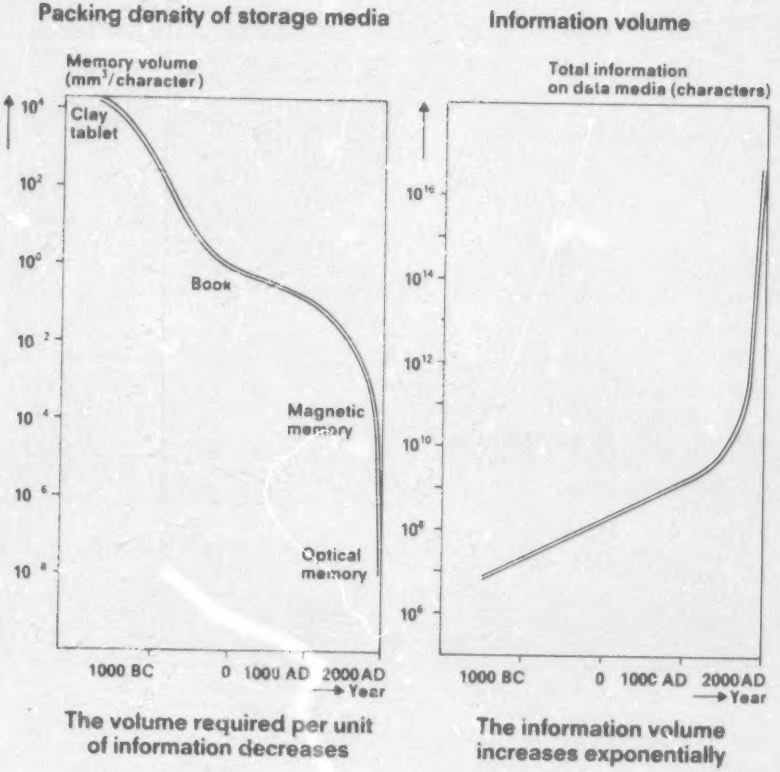

Packing density of storage media
Memory volume
(mm³/character)
10⁴
10²
10⁰
10⁻²
10⁻⁴
10⁻⁶
10⁻⁸
Clay tablet
Book
Magnetic memory
Optical memory
1000 BC
0
1000 AD
2000 AD
Year
The volume required per unit of information decreases
Information volume
Total information on data media (characters)
10¹⁶
10¹⁴
10¹²
10¹⁰
10⁸
10⁶
1000 BC
0
1000 AD
2000 AD
Year
The information volume increases exponentially

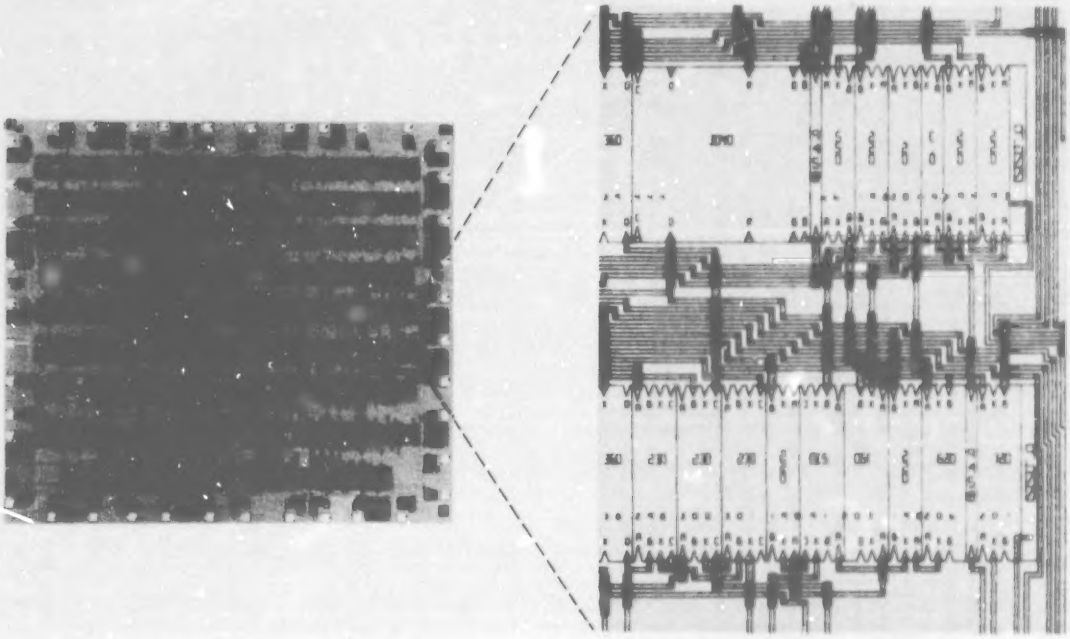
Fig. 5

The next aspect is that telecommunications has to provide **more complete communication** in the future. Today we are accustomed to have only one kind of communication at a time, for instance a telephone call or a connection for text, date or facsimile transmission. This is not satisfying actually, because people today would like to have a "complete" conversation like sitting face to face. If I talk to my partner via telephone and would like to explain him something and need a picture for that, I would like to show him this immediately and not to set up a separate call and wait for a minute or two or three until the facsimile is transmitted. Technological advances in telecommunications are now going to make this complete communication possible for the future by providing a fast universal communications network for simultaneous transmission of voice, text, data and picture.

I would like to emphasise some main steps in the **technical development.** The first is the VLSI technology, which makes modern communications equipment with small space requirements possible. An economical production of VLSI technology, however, requires high quantities of production, in order of one million for one component, for instance. This is normally true only for universal components, but not for system specific components. These are necessary only in small numbers. To make this economically feasible we need other techniques, which have meanwhile been provided by the "cellular design" of electronic components. This is a methood of combining cellular modules of standard circuit arrangements in the development stage to special chips with different tasks, and so components can be designed for a special application in the system (see fig. 6). Hereby the development effort is extremely reduced, and smaller numbers of components can be produced economically. This is an important aspect for the economical production of complex telecommunication systems in the future.

A second important progress is the optical fibre technology, which makes the transmission of large bandwith, e.g. for moving pictures (TV), economically feasible. And the third aspect I would like to mention is CHILL, which is CCITT high level language. This is a method of developing more effective computer software with much less manpower. This is also an important prerequisite for developing economical communication systems.

How do we see the approach to an advanced **network for universal communications.** There will be two steps: at first a narrow band ISDN (which means Integrated Services Digital Network) and the second step is to convert this narrow band ISDN to a broad band ISDN.



Chip

Mask layout

VLSI logic cell design

Fig. 6

The narrow band integrated services digital network is built up with digital local exchanges (see fig. 7). This digital exchange is able to provide analog connections for the existing analog telephones and furthermore to provide digital "ISDN"-connections for simultaneous use of voice, text, data and picture services. This is a very powerful means of communication, which I mentioned before.

We call this ISDN - as described in fig. 7 - the narrow band ISDN, because it uses the existing copper wire for the subscriber line and therefore only provides transmission capacity up to 64 kbit/s. This is sufficient for voice transmission and a high speed for text, data and image transmission, except moving pictures. Most demands of communications in the future can be fulfilled with this technology, and we therefore think that the narrow band ISDN will be the basis of telecommunications in the future. This will be true also because the additional investment for this ISDN - using the existing copper wires - is not so high.

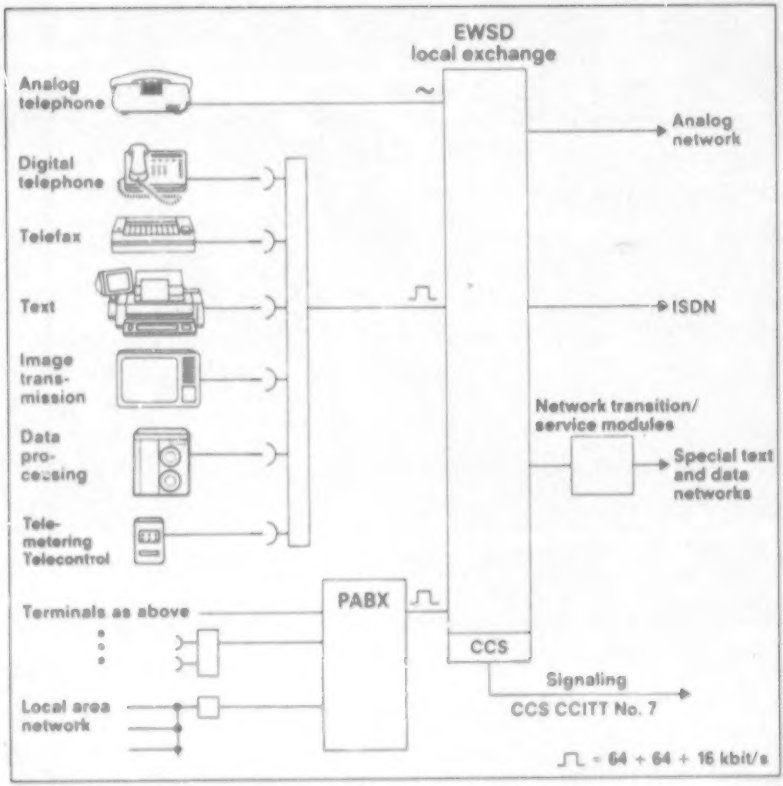
The second step is to add broadband facilities to the narrow band ISDN by use of optical fibre cables. Optical fibre systems have been introduced already in long distance networks, where their application is becoming economical. For subscriber lines optical fibre systems are still very expensive.

In Germany we are preparing the so-called BIGFON project. This is an abbreviation for a German word, which means broadband integrated glassfibre telecommunications local network. It uses glassfibre lines between the subscibers and the local exchange (see fig. 8) and provides all the narrow band services with up to 64 kilobit per second which I mentioned before in context with the narrow band ISDN. In addition to that it provides broadband services like video telephony. Moreover the BIGFON project can provide the distributive communication like cable TV networks do.

BIGFON can provide simultaneous services. For instance a number of (narrow band) voice, text and data channels and at the same time one video telephone call and also three television programmes which can be selected by a switching matrix out of a quantity of 16, 32 or 48 TV-programmes, and four stereo sound programmes out of a quantity of 32 or 64 programmes. This is our solution for the BIGFON field trial being prepared for the introduction in Germany by the end of 1983.

There are six different companies or [illegible] of companies in Germany presenting their own technical solution for BIGFON, and the Bundespost will select one or a combination of the different techniques within the next three or four years and then begin with the general introduc-

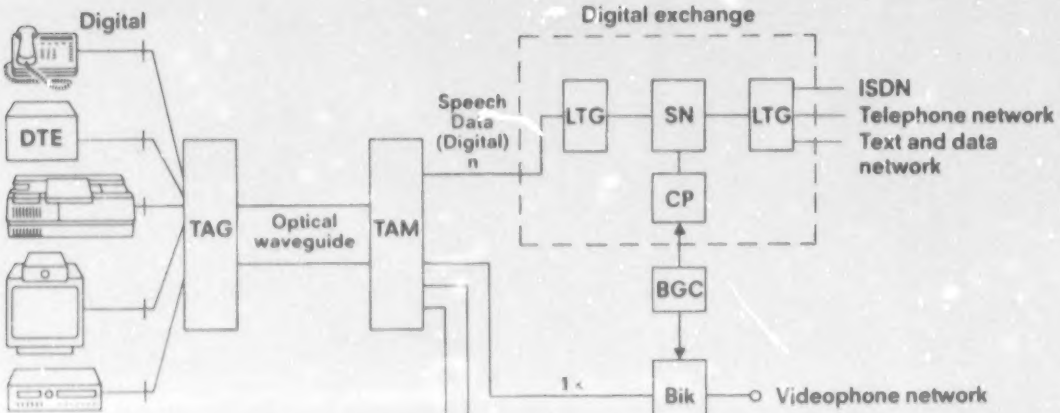
SIEMENS



ISDN

Integrated services digital network

Fig. 7



BGC Wideband group control
Bik Picture signal switch
CP Coordination processor
DTE Data terminal
LTG Line/trunk group
SN Switching network
TAG Subscriber line terminating unit
TAM Subscriber line terminating module

BIGFON field trial

Fig. 8

tion of a broadband ISDN from, let say, 1986 or 1987. This is the intention.

The six companies or group of companies for the BIGFON project are (1) AEG-Telefunken; (2) Fuba, Nixdorf, Kabelmetall, Blaupunkt; (3) Krone, Quante; (4) Philipps Kommunikations Industrie (TeKaDe); (5) SEL (ITT); (6) Siemens.

The terminals in the narrow band category of services are the same as being used today in the telephone, text and data networks, and in addition to that we will get digital telephones with displays and special ISDN terminals, particularly multifunctional terminals. For the broadband category of services we will get a video telephone, which can - in many pri ate households - be built up of the normal existing TV set and an additional TV camera.

The **transition to** the **ISDN** of the future **should be harmonised worldwide.** I emphasise this because there are some differences in the various countries about the approach towards ISDN. The experts in the world agree upon the CCITT standardised ISDN being the best solution for an economical, universal network for the future. But the present situation and the intentions for the approach towards ISDN are different in some countries. For instance in the United States there are a number of specialised networks, with different interfaces, speeds and communication protocols. The intention to make the different services compatible with each other via network transit modules is not the right way in our opinion. Therefore, I think, that there may be some problems for the transition of the existing networks to the standard network of the future.

DISCUSSION ON KARL JOSEPH FRENSCH'S PAPER

Additional remarks of K. J. Frech during discussion:

The next step is to install more and more "data over voice" facilities. This means, that a subscriber gets normal analog telephone service and additionally, simultaneously a 56 kbit per second data service. This data service is implemented by frequence division multiplex over the voice channel, through the same two-wire copper line. This is one example for an intermediate solution. It needs additional equipment on the subscribers premises and in the local exchange. It may at first depress the demand for future ISDN-services, on the other hand it offers a kind of multifunctional service to the subscribers in an early stage, and moreover it makes business.

The last aspect is **"cable TV"**. In Germany we have at present a big struggle about the demand for cable TV and its technical realisation. Some argue that we don't need additional programmes at all. Other discussions refer to the appropriate technical concept for a cable TV network.

Our view is that the demand for more programmes (and better reception quality) is a matter of the market, and the situation in other European and overseas countries confirms this demand. And as a technical solution today for cable TV, only coaxial cable systems are available. They are proved much cheaper than a glass fibre network like BIGFON could be.

Regarding the demand of individual dialog communications I think that private households in the dwelling areas of cities and countries are largely satisfied with their telephones. The only obvious desires may refer to the distributive communications, namely to get some more and better quality TV programmes. This can immediately and most cheaply be performed by adding a coaxial cable TV network.

On the other hand, in the centres of the cities, where companies and administrations are situated, there is a demand for individual broadband communication services, for instance video telephone and video conference services. Companies and administrations can take economical advantage of this, and are therefore willing to pay higher fees for these more expensive services.

Therefore, our advice is to begin with BIGFON facilities from the centres of the cities and to provide cable TV networks in the outskirts, in the dwelling areas. This general strategy does not exclude measures for an appropiate transition from cable TV networks with coaxial cables, to glass fibre techniques as soon as they become economically available.

TRANSNATIONAL DATA FLOW - A GERMAN VIEWPOINT

HANS-DIETER KLEE

What was inconcievable a decade or so ago had become an everyday occurrence: The office of a Hamburg transport firm has to find the best possible rates and route for tricky cargo. Formerly this job would have taken at least half a day, but now it can be done in only a few minutes.

Using an ordinary telex machine, the employees of the transport firm direct their question to a subsidiary of the Honeywell Company in Hamburg. A normal telephone line is used to transmit the problem to another Honeywell centre in Amsterdam. The next stop of the transmission is via satellite to a big computer in Cleveland, Ohio in the USA. Time lapsed since the initial transmission in Hamburg: about one second.

The computer's stored data include transport rates, the latest currency exchange information and all characteristics of national customs authorities. Only one half minute later the information arrives by telex in Hamburg.

This is only one of many hundreds of thousands of examples of similar transactions that can amaze only the uninitiated layman. In the world of business, it is merely a routing procedure. For years the international political scene has witnessed the ritual of media conferences with their tireless debates and reptitious arguments about the significance, the influence, and the danger for the classical media that is books, press, radio, television and films.

However, now electronic technologies have brought new kinds of communications which, in turn, will bring epoch-making social changes.

The developing countries are even less prepared to deal with these changes than those brought by the "classical" media of our age. The telphone companies and post offices of various industrial nations are already providing data services: for example, Telefax which transmits texts or drawings in minutes, or Teletex which can transmit business letters via long-distance telephone lines in seconds.

In most industrial nations, data flow via television systems is already in operation, Videotext in the Federal Republic of Germany, DIDON and ANTIOP in France, PRESTEL in Britain, CAPTAIN in Japan, TELIDON in Canada, and QUEBE in the USA.

More than 80 information banks are in operation in Europe and are linked by "Euronet Diane", Direct Information Access Network for Europe.

This means that there is direct access to millions and millions of data bibliographies in such fields as physics, chemistry, biology, electronics, mechanical engineering, nutrition, agriculture, medicine, patents, and many other areas.

In future, the Diane net is to include data from the whole spectrum of human kowledge. Literature as well as indiviual data are available from the data banks. The individual information services of Diane (the so-called "hosts") have the task of establishing and operating data banks and to provide information for those seeking it. A normal telephone line connected with the national network centre provides direct access to all data banks.

Access to about 150 individual data banks is to be offered in a step-by-step-process.

Global data exchange systems have also been established.

I mention only a few of them:

For a long time, the World Weather Watch and the World Health Organisation have used a computer network, as has INTERPOL.

INIS operates under the aegis of the International Atomic Energy Commission.

AGRIS operates under the FAO: it includes 90 nations which exchange more than 10,000 documents per month. SWIFT (Society for World Financial Information Transactions): 600 banks and saving banks of the Western industrial nations use SWIFT to exchange many hundreds of thousands of data each day through centres in Brussels and nearby Antwerp in Belgium. SITA is a system that links the information exchange of 200 airlines.

Many international corporations use either own data networks or international systems such as Cybernet, Mark III, or the Satellite Business System.

Banks, insurance companies, and industrial and commercial companies in the industrial nations have available a body of information (data banks and data processing) that gives them a decisive market advantage. Western industrial and commercial firms, chambers of commerce and industry, and economic federations have their subsidiaries and partners in the developing countries, from whom they receive basic data and special information on the developing countries financial and economic situation.

The official representatives of these nations can only dream of having access to such information because they must rely on the now obsolete means of information transfer: mail, telephone, and at the best, a telex machine.

The statistics of the Club of Rome from the year 1977 set the value of operating computers in the idustrial nations at 82 billion dollars, but only 4.4 billion dollars in the developing countries.

In the case of data flow, the role of the USA has to be discussed more extensively than in the case of other types of information flow. There are more than 2 million computer consultations annually, and 75 % of them are conducted in the USA. The "Big Two" in this field, the data banks of Lockheed and of Systems Development Corporation, dominate 75 % of the European market and 60 % of the domestic market. Of all consultations involving public data banks 90 % are made in the USA with the remaining 10 % distributed among various countries.

Today, data banks and computer kow-how are instruments of economic

power, compared to which cultural alienation by radio and television programmes, as real as it is, is only a pale spectre. In other words, what was previously only a secondary area of activity in international communications debates has become the primary area.

For example, the producer nations Ghana and Ivory Coast do not determine price developments of cocoa. Rather, this is done by big importing-exporting firms in the industrial nations who can use data networks to obtain the most up-to-date and detailed surveys of world markets and trends. They are informed about the flow of goods, supply and are able to manipulate the market.

In the case of the international oil market, OPEC, the Organisation of Petroleum Exporting Countries, has become the first effective counterpart of the oil-multies in information and marketing policy.

As power positions on international markets become more and more dependent on comprehensive and up-to-date information, so the importance grows of electronic information systems for decision making. The "third industrial revolution" or the "third wave of innovation" described by Alvin Tofler in his book "Chances for the Future", is socially ambivalent as are all technical developments. It represents opportunities and dangers. There is no reason to minimise the dangers of such a rapid technological break-through, to minimise the serious warnings sounded by social scientists, who fear an over-informed instead of an information-society, in the near future.

The invasion by modern communication-technology, even of African countries, is at high speed and promoted by business interests:

1. The character of PTT in developing countries changes. With the accomplishment of communication infrastructure, step by step, they get instruments of policy-decision-making.

   We must bear in mind that the three big T-s:
   a. Transport
   b. Telecommunications
   c. Training
   are most important constraints on the development process. I can imagine that branching out on modern technology by Telefax or electronically processed and printed newspapers could minimise the transport problem in many countries.

2. An increasing need for commodity services, economic data in administration and business circles of developing countries en-

courages governments to implement computer systems to try to get access to data banks. Attempts emerge for better intra-country marketing and storage retrieval by computerised data flow.

3. News agencies and broadcasting stations in Africa started not only to link with Intelsat but to design intra-country microwave links for news gathering or educational purposes.

4. Land mobile communication units and even portable computer storage for reporters, now available at a reasonable price, can pave the way for better communication at regional level in a developing country.

   Multi- or two-way links can include, for example, communications between various ministries and departments involved in projects, feedback to central offices, instruction via telescreen, conference-like discussions by experts who may be hundreds of miles apart.

5. Digital audio and video nowadays are about to change media-technology in the industrialised countries and will, till the end of this decade, spread to developing countries.

   No attempt at disassociation would be realistic because the communication links between developing countries and the industrialised world cannot be cut without putting in question economic progress and the functioning of administration in developing countries. Their inter-dependence - we may regret this - is a fact.

   To prevent progressive dependence due to concentration of communication power in the hands of a few, the only remedy is horizontal, South/South cooperation and making the utmost of Third World experts and know-how for international exchanges. That means:

   1. More training today for tomorrow's needs.
      Training of computer programmers and engineers as, for example done by the CDG, Carl Duisberg Gesellschaft, in Germany, for the past two years.

   2. Setting up of regional clearing houses to link demand with the resources available, and of "regional space agencies" or coordination.

3. Indigenous manufacture on a cost-sharing basis, at least in the field of software production and within the framework of horizontal cooperation.

4. High level political joint efforts for lower tariffs by the national PTTs as well as by Intelesat.

5. Last but not least: Joint research efforts on the application of modern communication technologies and their negative/positive impact on developing societies.

The challenge is global and inescapable. It forces us to enter a discussion that must be conducted fearlessly and openly, and with the kowledge that the computerised information society now seems inevitable. Whether this will be a humane society depends on the participation of scientists, intellectuals, politicians, and union leaders in these discussions.

DISCUSSION ON DIETER KLEE'S PAPER

A comment on the social and political role of TV in Australia:

There are a lot of small local stations which normally cater for adult education. They have little money and enjoy the occasional subsidy. They have special relevance in catering to the needs of the minorities. There are problems arising from the fact, that especially in urban areas, there may be some programmes overlapping and this system which is in principle laudable, is in danger of excessive diversification.

A hint to a Canadian model: The special model of mobile television in Newfoundland, together with target-oriented learning centres, provides community development in the province. There is some cooperation in that local news to get taken over by the national network of CBC. Mobile stations only remain for a short time in one and the same community, but return after a while.

Some additional comments: A plea was made that the communication needs of the Third World could be strengthened by increased regional South-South cooperation. In this, some regions of the Third World have made more process than others, and the North has so far not noticed it.

There was criticism of the high tariffs charged for the use of technical satellite installations for the international data and information flow.

National postal ministries kept the charges high. For instance, INTELSAT, satellites could already be used for several hundred dollars, a price within the grasp of most, but national cost segments tend to be prohibitive.

The countries of the Third World have become noticeable more self-sufficient and self-conscious in the last ten years. The economic cooperation of developing countries on a regional level among themselves have largely contributed to this. The Third World is in the process of emancipating itself, and one will be in for a number of surprises in the future.

BROADCASTING UNIONS IN THE FUTURE - SPORTS AND NEWS

WERNER SCHNEIDER

The current situation in EBU (European Broadcasting Union) is this: In 25 countries we have one or more channels and sometimes in different languages like in Belgium, Switzerland or Yugoslawia. Only in Great Britain, France and Germany are there two different companies on a nationwide level.

The only commercial network is ITV in the United Kingdom. When ITV started its programme about 20 years ago, the situation in the UK became highly competitive. Just an example: The BBC paid 101,000 pounds for the rights of a delayed transmission of the boxing world championship between Muhammad Ali and Joe Frazier in Manila, whereas ZDF in Germany bought the same fight for merely 16,000 dollars for direct transmission and for another 40 minutes the following evening

In Germany between the networks ARD and ZDF as well as in France between TF 1 and Antenne 2 and in Belgium with BRT and RTB there is usually a mutual understanding before negotiations are undertaken with the organisers of events. This situation will change in the near

future, and it has already begun in some countries.

There will be more and more channels available due to new technology such as cable and satellite TV. And the main battlefield will be transmissions of sports events. Presently, 83 per cent of the exchange of programmes within the EBU is sports. Other international editions like drama or music festivals have become less important.

The second leg of the EBU is news exchange. In this field, we believe, the situation will remain unchanged, at least in the near future. It will take other systems outside the Union decades to cover the news as completely as we can do it through our widespread system of member organisations.

The European Broadcasting Union has not decided yet, whether new radio or TV-systems could be accepted as members. But is is one of the fundamental principles of its statutes, that no local or regional broadcasters would be admitted.

Let me come back to sports. Here we have gained some experience. It started exactly two years ago, when Canale Cinque in Milano obtained the rights for Europe to transmit the so-called Mini-World Cup in Montevideo with national football teams from Argentina, Italy, Uruguay, Brazil, Holland and Germany. For the first time, the monopoly of the EBU was broken. Since then Canale Cinque and its owner Signore Berlusconi with apparently strong financial backing appeared in many cases, but not very successfully yet, because he cannot guarantee the transmission of events through Europe.

EBU members are obliged by decisions of the council and the general assembly to strict solidarity, if contracts could not be obtained by the EBU or the host broadcaster as a member of the EBU.

The only exception is professional boxing in some cases, especially with American promoters.

At the present stage, negotiations are under way with the organisers of the Wimbledon tennis tournament, who have asked for 500,000 pounds for the European rights, more than double the previous years. The EBU cannot pay so much money, but Canale Cinque have offered one million dollars. These experiences have led to some reactions by the EBU.

In order to become more flexible, we have organised our structure. The sports Working Party, up to September of this year mainly an advisory body to the Executive Committee, the Programme Committee

and the Council, has been granted more autonomy in all cases which are not general policy matters.

It is now free to negotiate and handle all kinds of contracts except those for the Olympic Games and Football World Championships. The second vice-president, in charge of relations with international federations and organisers, has been nominated as a scout, who in case of necessity will react immediately on the spot.

The working party has created a bureau with eight persons, who can meet and discuss whenever necessary and come to decisions when needed.

The relations between the EBU and the international sports federations are excellent. In some major sports, we have long term contracts for three or more years. This is the case for the finals of the European Football Cup, and in the Cupwinners Cup, in Figure Skating, in Formula One Motor Racing, in Ice Hockey and some other sports.

International Federations appreciate these long term contracts because it means security for their budgets and better planning for the arena advertising which is in many cases their major revenue.

In ice hockey, for instance, the EBU fee for the world championships is now somewhere around 500,000 Swiss francs. The revenue from the Wall-advertising around the rink of the Helsinki Ice Stadium, where the championship was held this year, mounted up to 3.25 million Swiss francs. This, of course, is mainly directed to European viewers, and sponsors in general are European producers. Without the participation of 16 member countries of the EBU this amount of money from publicity could never be obtained.

The EBU has joint committees with the European Football Association and with the General Assembly of International Sports Federation (GAIFS), where common problems are being discussed regularly. Cooperation has been reached in many ways, and in the meantime we have obtained in many fields a status of partnership, trust and sometimes friendship. This is the situation now. But we are quite aware of the fact, that money has quite often broken the best friendship. Therefore, we have to look out for the future.

The bureau of the EBU Sports Working Party has worked out some plans for the future. We have named eight major sports which we consider a must on Eurovision screens and where we must have the financial means to meet any competition from other broadcasters. Only such action, we believe, will secure the future of the European Broadca-

sting Union. It is also under discussion to establish a European Satellite System for mainly sports transmissions, similar to the American ESPN system.

Still, there will be enough sports transmission available for new broadcasters. In a spreech at the first international conference on broadcasting, and the Olympic Games in June 1981 in Baden-Baden, I explained to the delegates of six broadcasting unions the extraordinary evolution in sports events, that in the past two years more than 50 new World Cups, European Cups, Super Cups and Mini Cups have appeared on the calendar.

At the same time the portion of sports time in the programme of EBU members has remained at an average between eight and ten per cent and only slightly higher in the years of Olympic Games and Football World Cups.

Taking all this into account, my trust in the future of the European Broadcasting Union is optimistic but it leaves room as well for other broadcasters.

COMMUNICATION SATELLITES - A THIRD WORLD PERSPECTIVE

NEVILLE D JAYAWEERA

> "Science and technology can be borrowed, imported and adapted from abroad. But ultimately creativity from within is the only answer. For development, essentially, is not a matter of technology of GNP, but the growth of a new consciousness, the movement of the human mind, the uplifting of the human spirit, the infusion of human confidence." - Everett Kleinjans[1] (President, East-West Center, Honolulu, 1975)

Introduction

We may accept this quotation as a useful jumping off ground for our discussion, not because we can all share Kleinjan's understanding of what development is "essentially" about, but because his rejection of science, technology and GNP as constituting the essential determinants of development, is by itself significant.

It is significant firstly because it is a formal admission of the failure of a particular development cum communication ideology, i.e., the "modernization" paradigm, that emanated from the United States in the 50s and the 60s and holds sway in many developing countries to this day[2].

Secondly, because it comes from the Head of an institution which, since its inception by an Act of Congress in 1960, has been veritably the bastion of the ideology, at least in its communication aspect.

Let me dwell a moment on the circumstances that led Kleinjans to make this pronouncement.

In 1984 a conference was held in the East-West Center in Honolulu which was intended to develop a global consensus on the role of communication in development. To this end were brought together the purveyors of "development" and "communication" wisdom conventional at that time - Max Millikan and Harry Oshima, et. al., on development theory and Daniel Lerner and Wilbur Schramm et al., on communication theory. The consensus achieved at this consultation was published in 1965 with a Foreword from President Lyndon Johnson.[3].

Reduced to its most simplistic expression, the consensus developed at this conference reads something like this. Developing countries remain underdeveloped because of their "traditional" ways. If they are to "develop", that is, to become like western industrial societies, their "traditional" habits of thinking and behaving have to be changed drastically. This can be achieved most quickly through mass communication.

Therefore if "development" or "modernization" is to be achieved heavy investments have to be undertaken on the development of mass communication systems, principally radio. If only developing countries could be persuaded to invest in efficient delivery systems, then, notwithstanding the content of the message, the very presence of the mass medium would be adequate to set in motion those socio-economic processes that would ultimately "modernize" their societies.

During the decade that followed, both the "modernization" concept and development communication concept received wide acceptance within the Third World. Massive investments in mass media infrastructure were willingly undertaken. Transmitters, transistor radios and TV sets were multiplied many times over.

For instance, between 1963 and 1973 the number of radio receivers increased by 300 % in Africa by 450 % in Asia and by 250 % in Latin America.[4] However, out of this injection of "communication" into the system "development and modernization" did not result in proportion to expectations. For instance, if we take two key indicators of economic growth viz., increases in per capita food production and increases in the share of world trade over the same period, it will be found that the developing countries recorded negative or negligible growth rates and that communication correlated to development in an inverse ratio.[5]

Granted that not even the most die-hard modernization addict would claim precise correlations between mass media variables and develop-

ment, although Daniel Lerner tried to do precisely that, the general picture that emerged after a decade was that mass media delivery systems did not necessarily beget the kind of development that was sought.

What did emerge was the realisation that "development" was a more complex phenomenon than could be compassed within a few simple variables like foreign aid, capital investments, mangement, communication, productivity, etc. and that it required a far wider and deeper strategy of social and political engineering that had been imagined earlier. It was the failure of the development paradigm of the 60s, i.e., the "growth" and "trickle down" model, that led the UN, on the competition of the First Development Decade, to launch the Second Development Decade, with a heavy emphasis on "distribution" and "equity" as distinct from "growth".

The initiative taken by the East-West Center and Wilbur Schramm et al., in 1975 to summon another conference in Honolulu, of almost the same theoreticians who met there in 1964 to map out a strategy for communication and development, was largely a response to the same set of facts that prompted the UN to launch the Second Development Decade, viz., the failure of the development paradigm of the 60s.

The modernization theorists were meeting to ask "what went wrong". And this is the confession they made - "the past decade did not produce the enhanced quality of life that we had hoped for ten years ago. Even the impressive gains of GNP in many Third World countries evaporated when restated in per capita terms, for these economic gains were largely swallowed up by greater increases in population. In several poor countries around the world, the qualitiy of life today is, if anything, down".[6] The pronouncement from Kleinjans in his opening address to the group, quoted at the beginning of this paper, had already set the parameters for the discussion that followed.

Relevance of Satellites to the Development-Communication Debate

I have taken some time going over the development paradigm formalised at the East-West Center in 1984 and abandoned by its very proponents a decade later, because it seems to me, that another decade later, on the threshold of 1984, we are witnessing a reversal to the same development-communication paradigm. Except that the tools and the prophets of the 80s are different.

In the 60s the tools were radio and TV. In the 80s they will be satellites. In the 60s the prophets came from the behavioural sciences

- economics, sociology, etc. In the 80s the prophets are technologists and engineers. But basically the argument is the same - "Development is something that can be stimulated and engendered through mass communication. The more penetrating, the more widespread, the more efficient the delivery system, the more easily the ultimate development goals can be realised".

One senses the same retreat from complexity that characterised development-communication thinking in the 60.

At this point it will be useful if we state objectively what specific Third World needs the advocates of communication satellites believe the new technology will be able to satisfy. The following come to mind as being the principal needs that satellites, by virtue of their special characteristics, are said to be able to meet more cost-effectively than existing terrestrial system.[7]

1. **National integration**
Many Third World countries, either by reason of their immensity and geographical dispersal like India and Indonesia, or by reason of their heterogeneous social composition or because of natural barriers like vast expanses of forests, deserts or mountains are yet to be integrated into a single polity. The construction of roads and railways, the laying of telephone lines, and the construction of transmitting stations will take a long time and consume meagre capital resources. Meanwhile, domestic distribution satellites can perform this function much more cost-effectively.

2. **Administrative effectiveness**
As a corollary to 1 above, administrative integration and effctiveness is hampered. The bureaucracy tends towards concentration and higher effectiveness in the metropolis, and declines outwards.

3. **Delivery of education, both formal and non-formal including teacher training.**
The shortage of schools, teachers, equipment and buildings is chronic in most Third World countries. Satellites have the capacity to multiply these meagre resources at a fraction of their terrestrial costs.

4. **Delivery of agricultural extension**
As in the area of education, effective agricultural extension work is hampered by the lack of trained extension workers, the lack of transport, the inability to have as many demonstration plots as are needed, etc. All this can be overcome through satellites.

5. **Delivery of family planning programmes**
It is claimed by many development economists that the greatest single impediment to development in the Third World is population growth which every year either outstrips or at least equals economic growth. Family planning is therefore seen by them to constitute the centerpiece of any long-term economic strategy. But the crucial question underlying all family planning programmes is the one concerning communication. It is claimed that satellites are the answer.

6. **Delivery of medical and health care services**
What has been said of educational, agricultural and family planning extension is equally true of medical and health care. The same infrastructural and personnel inadequacies baulk the delivery of adequate diagnostic and curative services from the metropolis, where a certain volume of professional skills is concentrated, to the outlying provinces where they are grossly inadequate or totally absent. Such skills as are available can be multiplied and dispersed through a domestic distribution satellite. Additionally, by linking to a global satellite network like the Intelsat system, the limited professional staff concentrated in a Third World capital city can have instantaneous access to the most sophisticated and skilled consultative services available in any major global medical center, obviating the need to transfer patients over vast distances and enabling a constant upgrading of skills at the periphery.

7. **Isolation from marketing information, both national and international**
A modern economy must have access to and supply data, the most up-to-date, instantaneously and on call, both to suppliers and customers, abroad and at home. The speed of modern international commerce has rendered telegraph and all narrow-band telephonic communication, including telex, using shortwave frequencies, almost as obsolete as surface mail. Unless entrepreneurs, banks and firms have access to data banks and facsimile services through computers linked to satellites using digital transmissions, the international market would collapse. On a much smaller scale, this would be equally true of the domestic market.

8. **Region-specific cultural programming**
One of the major shortcomings of nearly all Third World radio and TV networks is that they are mostly centrally controlled and put out blanket programmes often ignoring cultural diversity within the national community. The solution to this consists of providing as many regional radio and TV channels as there are cultural groupings. Quite clearly this would be impossible through terrestrial systems, because of the costs involved. But with the arrival of direct broadcast and multi-

beam high gain satellites each cultural and linguistic group can be serviced through just one satellite, without the aid even of a ground station or a terrestrial network.

9. **Political and social pluralism**
Of the approximately 110 Thrid World countries recognised by the UN as being Less Developed Countries, except perhaps six among them, the rest have autocratic governments (either of the left or of the right), controlled economies (either capitalist or socialist) and closed societies. It is claimed that communication satellites will seriously erode the pover and durability of such systems. Once a national telephone network is linked to an international direct-dialling network through a satellite, the barriers to communication are breached forever and the official censor stands in risk of his job. Similarly through access to outside programme material beamed down from direct broadcast satellites, any closed society must begin to breathe again.

10. **Participation as a development tool**
Most Thrid World societies are highly hierarchical. Planning and decision-making are centralised an remote from the people. There are neither political nor societal mechanisms that eable the widest possible community to participate in either the political or the production process. This is one of the reasons attributed to account for low productivity in these societies. Normally, securing participation in broad societal processes is a highly complicated enterprise in social engineering. But technologists see in communication satellites the final answer.

What is unique in the new generation of satellites is that they enable interactive communication. As far back as ATS 1 which was launched in 1966 and later became PEACESAT, interactive communication on an audio frequency was possible. But now interactive video communication on an audio frequency was possible. But now interactive video communication is possible and within the next decade the wristwatch interactive receiving-transmitting terminal could be a reality.[8] So the utopia of participation which has challenged and perplexed ideologists, social scientists and politicians from the time of the panchayats of the Aryans and the Greek city states, down through the early Christian Church and the Presbyterians to the communes of Mao Tse Tung, is now said to be instantly realisable through the mediation of the communication satellite.

11. **The capacity to cope with natural disasters**
Many Third World countries are notoriously prone to natural disasters such as - cyclones, typhoons, tornadoes and tidal waves, floods and droughts, and earthquakes and famines. When disaster strikes the

capacity to organise relief on an adequate scale depends on the efficiency of the local telephone and transport systems

The availability of the communication satellite alters all that. Not only can relief be summoned speedily but the extent and severity of the disaster can be communicated in all its starkness to the whole world, thereby enabling the mobilisation of maximum support. Additionally and more importantly, the onset of some of these disasters, such as a typhoon, a tidal wave or even a famine, can be sensed out by satellites and predicted well ahead of the event so that there is maximum preparedness when the disaster actually strikes.

I have stated the case for communication satellites in the Third World at its strongest and in the categories in which it is generally seen by technologists, in order that we may mount a comprehensive critique thereof later on in this paper. But before we do so, it will help to remind ourselves that currently, establishment and technological thinking is heavily in favour of using communication satellites in a development-support role in the Third World.

This articulation comes mostly from technologists. Perhaps few have been so enthusiastic in their claims on behalf of communication satellites in the Third World as Arthur Clarke, the man who in 1945 first provided the theoretical basis for a satellite in geo-stationary orbit. Here is an example of his claims. "To many developing countries satellites are essential... indeed for such countries satellites could be a matter of life and death. To put it as dramatically as possible, unless major investments are made in space, millions are going to die, or eke out brief and miserable lives. And most of those millions will be in the Third World."[9]

Besides Arthur Clarke, there are others from the Third World, who are protagonists for communication satellites. Two outstanding names, both Indians, are the late Dr. Vikram Sarabhai of the Indian Space Research Organisation and Dr. Yash Pal, one-time Head of the Space Applications Centre at Ahmedabad and presently Secretary-General of the UN Space Conference to be held in 1982.

Vikram Sarabhai was convinced that communication satellites would enable Third World countries to leap-frog over decades of obsolescent technology with which the developed countries are now burdened.[10] Yash Pal even goes to the extent of ridiculing those who see in communication satellites a vehicle for cultural imperialism.[11] Perhaps somewhat surprisingly, but significantly, the prophet of radio and mass communication in the the 60s, Wilbur Schramm, argues the case for communication satellites with a greater caution than he showed when he pleaded the cause of radio two decades earlier.

He says, "the almost miraculous development of the communication satellites, and its spectacular capacity for delivering information over vast areas have overleaped anything any planner, two decades ago, felt he needed to be concerned with. We are living and shall continue to live for some years in the shadow of those three remarkable years, 1945, 1946 and 1947, the years of the satellite, the transistor and the computer... This is to the credit of our technology. But we have by no means thought through the related questions of how and whether... we must ask these questions both about the satellite and what it carries, how, when and whether to use satellites, and how, when and whether to use television in connection with it, for the purposes we have in mind."[12]

Empirical Evidence Concerning Communication Satellite Usage in the Third World

As I have mentioned in the foregoing section, the susceptibility to satellite usage for development is fairly widespread in the Third World. We may note very briefly, the following instances of usage either already completed, still in operation or planned for the immediate future.

The first communication satellites to be used for experiments in a development-support role were ATS 1 and ATS 3. They were launched by the USA in 1966 and 1967 respectively and were used for interactive voice communication by the University of South Pacific, in Alaska for health care delivery to remote areas and by PEACESAT for international conferencing.[13]

Then came ATS 6, a more powerful satellite, capable of carrying video channels and larger volume of communication traffic, but not interactive. This satellite was used in India in 1975-76 for the SITE experiment, which to this day has been the single largest attempt to deliver development programming via a satellite.[14]

The first Third World country to own a satellite for domestic communication purposes was Indonesia - Palapa 1, inaugurated in 1976. Palapa is tied to a terrestrial microwave system covering the whole republic.[15] The first Arab satellite is ecpected to be launched by the end of 1982, mainly for intra-regional telephony. It is claimed that ARABSAT will contribute to the development of the educational and social welfare of the Arab states.[16]

The University of the West Indies, after experimenting with ATS 3 and ATS 6 in 1978 is now seeking the collaboration of AID for investigating the feasibility of having a satellite system for educational purposes in

the Caribbean.[17] A similar project is being planned for the Philippines.[18] In addition there are several Third World countries who are already making use of transponder facilities leased from the Intelsat system, such as Algeria, Nigeria, Brazil and Peru, for their domestic communication and development needs.[19] Domestic satellite systems are also planned for Chile, Nigeria and Zaire.[20]

This is merely an inventory of the better known instances of Third World satellite usage. Unfortunately, except in the case of the SITE experiment in India, none of these instances have been competently researched by persons devoid of vested interests in their perpetuation. At least, if they have been researched their findings have not been circulated too widely. The literature widely available concerning them has been put out mostly by suppliers of equipment and commercial interests.

However, SITE is a notable exception. This was an experiment for using a communication satellite for delivering and generating development over the vast rural sector of the sub-continent of India. It had been planned almost ten years before it was carried out, by an interdisciplinary group of technologists, broadcasters, development economists, anthropologists, agronomists and administrators. The experiment was accompanied by an intensive and highly sophisticated monitoring exercise undertaken by a research unit lodged in the project itself. This built-in evaluation unit has placed before us a vast volume of research findings.[21] However it is almost impossible to express within the scope of a limited article like this anything more than a distillation of this mass of data. Let me try to sketch out the broad outlines of the picture that emerged.

The objectives of SITE, reduced to their most basic terms were:

1. the improvement of primary school education;
2. facilitating teacher training;
3. the diffusion of improved agricultural practices;
4. the extension of health, hygiene and nutrition;
5. the extension of family planning; and
6. national integration.

These objectives were to be promoted during the period of August 1st 1975 to July 31st 1976 in 2330 villages scattered over 20 districts and six states of India, by linking thousands of community TV sets to the ATS 6 communication satellite.

On the completion of the experiment, the eveluators found:

1. In respect of primary school education - that children and teachers responded to TV attentively, that very little gains were registered in science, social studies and mother tongue, that children did not learn from the content of science education programmes, but that the "general understanding and information seeking behaviour of the children had changed."[24] Also, very importantly, that "there were no significant differences between the SITE and NON-SITE groups."[25]

2. In respect of teacher training - that the majority of the teachers felt that the training had been useful, that TV was preferable to radio and that there were siginificant gains in the understanding of science subjects.

3. In respect of improved agricultural practices - that "no appreciable gains were observed", but that TV viewing did lead to changes in behaviour.

4. In respect of health extension, nutrition and family planning - that females gained more than men in health innovations and family planning but TV viewing "did not increase the adoption or use of family planning methods."

5. In respect of national integration - that "continuous exposure to community TV viewing served to break down social barriers unthinkable earlier".

The SITE project was beset with many problems. None of the stated objectives were realised fully. But non-achievment should not be attributed to the failure of the satellite as a delivery system. For the most part, non-achievement was logistical. The supporting services, both human and technological never seemed to mesh. Despite the minuteness of the planning, and the long period of time over which preparations had been made, the project suffered from constraints which had little to do with the adequacy or inadequacy of the technology that was to be tested.

The vastness of the country, the uneven quality of the administrative and other supporting services, the sheer paucity of simple maintenance facilities, the problems presented by having to produce programmes in fifferent languages, all took their toll. Also, the experiment itself lasted only one year, hardly enough time in which even to get an experiment of such a magnitude underway. Therefore while valuable experience was gained, one cannot conclude, on the basis of the evidence alone, that the experiment was either a success or a failure.

So we are left with little empirical evidence with which to validate the communication satellite as the catalytic development tool that technologists claim it to be. On the other hand, there is no lack of pessimism in respect of these claims, although such pessimism is not the expression either of empirical research or of rigorous theoretical thinking.[27]

A Theoretical Approach

In the absence of hard empirical evidence, we are compelled to fall back on theoretical thinking. We need to have both a theory technology and a theaory of development.

Arthur Clarke and several other technologists claim that technology is "neutral" - "like all technologies, the ability to communicate is neutral."[28] Technologists rarely define the word "neutral". But if by neutral they mean that technology does not predispose those who use it, to the acceptance of values, attitudes and lifestyles of the societies of which they are an organised expression or product, they are going contrary to the evidence of history.

We must however draw a distinction between mere "inventions" and "technology". Gun powder and the printing press were "invented" in China and brought across to Europe where they then served to lay the foundations of European expansion and global power. But Europe did not succumb to Chinese culture by adopting their inventions! Neither did Europe absorb Arab culture by taking over the mariner's compass which was "invented" by the Arabs. On the other hand, these "inventions" were not organised expressions of the productive structures of medieval Chinese or Arab societies.

An "invention" is translated into "technology" only when it is used in an organised way to extend the productive capacities of a particular society. But in order that an invention may be so translated, there must be within that society a particular conjuncture of economic, social and political circumstances which automatically guarantee its exploitation and conversion into an instrument of economic and social power.

In medieval China those conditions were not available, but in Renaissance Europe, they were. Similarly, the steam engine, the spinning jenny and the blast furnace did not remain as mere "inventions" because 18th century Britain was seething with the economic surpluses generated by the agricultural revolution of the 17th century and the circumstances needed to convert them into engines of economic power were already in place. They then went on to transform the whole

globe. It is the export and use of such "inventions", i.e., technology, which have either been incorporated into the productive structures of a society, or are expressions thereof, that transmit culture.

Let us try to understand the communication satellite within this frame. Arthur Clarke maybe said to have "invented" the communication satellite in 1945. But for over a decade no one took notice of it. It was only when the rapidly expanding production machine in the advanced industrial societies began to exert pressure on existing communication systems necessitating massive investments on underground cables, etc. for instantaneous and voluminous commercial transactions, and when the whole western capitalist system came under serious threat from the rival communist system, that attention was turned to Arthur Clarks's invention. That invention has now been integrated into the production process and is to be used in turn to transform and expand it.

It is in that sense that technology is not neutral. It comes in a socio-economic-cultural-political package. By its very inner dynamic it seeks to integrate its users into the larger system of which it is the expression and the tool.

That leads us to a consideration of a theory of development. As we saw at the commencement to this paper, by the start of the 70s, the development concept fashionable in the 50s and the 60s had come to be abandoned. Development had been understood to mean "being like" the advanced industrial societies, i.e., acquisitive, affluent, consumerist and measuring progress in terms of the quantity of goods produced, possessed and consumed.

Two questions are involved here. Firstly, a moral one as to whether life so lived, is "development". But let us not delay discussing that question. Secondly, a question of economics and politics - that is to say, granted that there has been for nearly three hundred years a global economic structure that is described as the "international division of labour" (IDL) whereby two-thirds of the world supply cheap labour and cheap raw materials to the balance third of the world, which in turn processes and manufactures and exports them back to the two-thirds world at enormous profit, and granted that the one-third world would never willingly yield or modify this unequal relationship, was it ever possible that the poor countries could catch up with or be like the rich countries?

The development concept of the 50s and the 60s was basically contradictory in that the poor countries could never become like the rich countries unless the unequal relationship was restructured.

The communication theorists of the 50s and the 60s, i.e., the purveyors of the modernization theory, sought to underpin this development concept with a communication strategy. Radio and TV were to be used as substitutes for re-ordering economic structures, both global and domestic. It was easier to generate demand by using radio and TV and thereby to widen the markets for the metropolitan producing countries, than to undertake painful political, social and economic restructuring.

It was naïvely assumed that people could be motivated to learn, produce and consume by exposing them to mass media. The lack of motivation was interpreted in psychological terms, as being due to a lack of psychic mobility which, it was said, could be supplied by radio and TV. The possibility that the lack of motivation could be also a product of oppressive structures and that the mere removal of such structures could be the best stimulus to production was not considered highly.

The 70s were charcterised by an increasingly strident demand for economic and social restructuring, both internationlly and within the domestic sector. On the international plane there were demands for a "new international division of labour" (NIDL), for a "new international development strategy" (NIDS), for a "new international economic order" (NIEO), and for a "new international information order" (NIIO).

All these slogans represent demands for major global structural changes. The domestic sector has been characterised by an even greater agitation. There have been demands for land reforms, for redistribution of incomes and for greater participation and more democracy, often accompanied by insurrections, liberation struggles and even disorganised and meaningless violence often described as "terrorism". The international and the domestic expressions are not separate entities. They are expressions of the same reality, of an unjust and iniquitous global system. Both internationally and within the domestic sector, these strident manifestations have been met with increasing obstinacy and repression on the part of the dominant interests.

This then is the broad frame within which we have to consider the arrival of the communication satellite as the new development tool.

Relevance of the Communication Satellite for the Third World - reconsidered

From the foregoing theoretical discussion we noted that technology is inextricably linked to a given economic base and that the global econo-

mic system is charcterised by great inequalities both in respect of the distribution of power within it, and in respect of access to the benefits thereof.

Given such a situation, communication satellites can only result in an enormous strengthening of the power of the dominant interests and the consolidation and perpetuation of existing structures, both internationally and within domestic situations. Far from enabling "development" as understood in the 70s and 80s, they are likely to return the global economic system to the disparities of the 50s and 60s.

That is to say, contrary to claims concerning their potential for enabling interaction and participation they are more likely to strengthen the structures of which they are the product.

Let us now re-examine the 11 claims made on behalf on communication satellites as set out at pages 3-6 of this paper, within the foregoing theoretical frame.

1. National integration. One has to remember that the lack of national integration can be a manifestation of a malaise which is far more complex than is suggested by territorial vastness or the incidence of forests, mountains and deserts. Very often the lack of integration points to the need for more autonomy for the constituent national entities. Such entities have often been lumped together for colonial expediency and lack an inherent raison d'ètre. In such situations satellites can be used either as instruments of coercion or as a substitute for more human forms of achieving integration.

2. Administrative effectiveness. Bureaucratic concentration in the metropolis, which is largely responsible for administrative ineffectiveness in the Third World, is likely to be aggravated through a communication satellite. Officers will be able to work from the capital city, using telephones linked to the satellite, interactive radio systems, computers and other satellite-based gadgetry. But that would only give a spurious impression of efficiency whereas in fact the administrator will become less and less involved directly face-to-face encounter with them and not an electronic interface.

3. Delivery of education. This slogan has been used consistently, and with unerring success, to justify the introduction of TV into the Third World. TV is recommended to the Third World not for entertainment, or for commerce, but for education! For over two decades experiments have been conducted for determining the adequacy of TV as a vehicle for education. Particular instances are American Samoa, the French Niger and SITE. But in none of these instances have we been told un-

equivocally that TV is the best vehicle, or even an adequate vehicle. On the contrary there is considerable evidence to show that education is best delivered in a face-to-face interactive situation.

4. Delivery of agricultural extension. The problem of agricultural extension in Third World countries is more than a question of access to knowledge, and demonstration. It is primarily a question of land tenure, the lack of credit, exploitation by landlord and middleman, the lack of irrigation facilities, the high cost of inputs, etc. Most of these are structural and political questions. Reliance on satellites to deliver the right information presupposes that what hampers farm output and productivity is merely the lack of information. This is a grossly inadequate and naive understanding of the nature of agricultural production in poor countries.

5. Delivery of family planning. The considerations that apply to education apply here too. Additionally, this argument presupposes that population growth is really the principal constraint on development in the Third World. It is sometimes argued that preoccupation with family planning is itself a search for an escape route of the untidy business of undertaking structural changes. Satellites will perhaps help broaden and pave this escape route.

6. Delivery of medical and health care. The fundamental issues of medical and health care in the Third World are not related to the lack of communication but have to do with the lack of clean drinking water and the lack of protein and vitamins. They are not diagnostic but directly stemming from poverty.

7. Isolation from marketing information. This is a disability peculiar to big entrepreneurs and multi-national corporations based in Third World metropolitan centres and not a felt need among small-holding subsistence farmers and village cooperatives who constitute the bulk of the rural sector. The solution to the latter's need for fair prices is not likely to be provided by instantaneous satellite communication.

8. Region-specific cultural programming. Far from providing a stimulus to local cultures, satellites are likely to obliterate them completely. The needs of local programming and cultural renewal cannot be met by having mere powerful transmission facilities but by prevailing appropriate software. Even existing terrestrial TV with only a single channel cannot be supplied with the software adequate for filling available airtime. How much less can several channels be supplied with software? This would necessitate filling the increased channel time with alien and cheap programme material which would be disastrous for local cultures.

9. Political and social pluralism. Far from eroding thr power of autocracies, satellites are likely to consolidate them beyond the capacity of even organised mass movements to challenge. Pluralism is ultimately a matter of political consciousness and not a question of technology. In the hands of centralised and autocratic governments satellites can function as powerfully as the military and the police.

10. Participation. Like pluralism, participation is a product of political consciousness, of the pressure of organised and motivated people on the structures of power. It can never be contrived, least by recourse to technological devices.

11. The capacity to cope with disasters. This again is less a matter of information than a matter of basic infrastructural and resource inadequacy. What does a community on a seacoast town in an average Third World country do even if adequately warned of an impending cyclone? Their houses are so fragile that nothing they can do can reprieve them. And where are the people to evacuate? In what? And once disaster has struck, satellites cannot supply resources that the society never had. In any case, advance warning is already available through existing weather satellites without Third World countries having to have their own satellite capability.

At this point I would like to draw out what I feel lies behind the Third World's current preoccupation with communication satellites.

a. It tends to repeat the cardinal error of communication strategies of the 50s viz., the assumption that the cognitive element, i.e., access to information and knowledge, is fundamental to the development process. This may be true of certain cultures and societies, particularly of western industrial societies, where the cognitive element has been for centuries the dominat factor. The development communication paradigm of the 50s universalised this limited truth. Today, dazzled by the awesome information-delivery capacity of the satellite there is a visible return to this assumption.

b. The return to the cognitive, is fundamentally an expression of an unwillingness to see the problems of Third World poverty in structural terms. The breakdown of the development-communication paradigm at the close of the 60s saw the communication theorists of the behavioural school yield centre place to the structuralists - Schiller, Halloran, et al.[29] During the 70s we saw a growing tendency, particularly in Britain and Europe to perceive communication problems in structural terms. But the onset of satellite communication is doing to communication thinking what the eruption of Radio and TV did to communication theory in the 50s. Apparently the hope is that this marvelous new

tool will make it unnecessary to undertake the structural changes that the Third World has been agitating for.

c. The communication satellite is likely to do for the industrial-military complex in the 1980s what the steamship, the railways and the telegraph did for the colonial empires in the 1880s, but more efficiently and more irrevocably. It will help integrate the periphery to the centre in a more durable way than was possible then. Dependency will be aggravated and domination strengthened.

d. There is likely to be a willing acquiescence on the part of Third World leaders, political and technological, to this new subservience. While the local leadership deepens its subservience to foreign interests, its strangle hold over its own rural sector will be strengthened. So there will come into existence a strong symbiotic relationship between the industrial-military complex working abroad and the domestic leadership working locally.

e. Not only will the satellite provide a strong impetus to the economic strangle hold of the industrial-military complex over the rest of the world, but it will simultaneously provide a platform for a resurgence of global cultural domination. With the arrival of direct broadcast satellites and the multi-beam high-gain satellites capable of beaming as many as 40 programmes directly into one's TV set, bypassing all terrestrial control systems, the stage is now set, at least technologically, for the obliteration of the cultures of poor societies. This will be brought about largely through the inability of poor societies to produce quality software for filling up the enormous expansion of airtime that will result from placing a satellite in orbit. In the absence of local software, national networks will have no option but to buy cheap and inferior programmes from the foreign salesman who will be already at the door.

f. The goals and objectives of both the NIEO and the NIIO are likely to be severely vitiated. Both these global strategies call for major structural re-arrangements. The satellite is likely to offer a technological alternative to such painful surgery.

g. At the root of this malaise is a defective understanding of the nature, causes, and mechanisms of Third World poverty. Basically, the error lies in assuming that Third World poverty is caused primarily by lack of communication, and that its alleviation can be engineered by supplying an enormous volume of information to the widest possible community. Communication is indeed a factor in development, but the causes of poverty are mostly structural, both national and international. A massive injection of communication into an unequal structu-

ral relationship will help mostly to consolidate and deepen that inequality rather than alleviate it.

I would like to sharpen this point by using an illustration from agriculture. In the 1960s the Third World was caught up in what was described as the Green Revolution. This was basically an attempt to step up grain production in the Third World drastically, in the shortest possible time, by recourse primarily to technology - hybrid seed varieties cultured abroad.

But this bequest from abroad did not come only as seed. It came in a package which included seed, artificial fertiliser, pesticides, weedicides and tractors - all of which had to be imported at increasingly high prices from the agro-business complex in the industrially advanced countries.

It was in the very nature of this package that the rich farmer would benefit most from it, because of high imported cost. Gross production increased sharply, as predicted, but the rich farmers grew richer and the poor, poorer. That is to say, by flowing into an unequal structural situation technology had benefited those who were already well off and had consolidated and perpetuated the existing iniquitous power relationships in the rural sector.

And few benefited as much from the Green Revolution as the agro-business complex of the advanced industrial countries!

The communication revolution in the Third World will come in a similar package. It is more likely to be a re-run of the Green Revolution scenario, except that its consequences, both beneficial (to the power managers) and deleterious (to the masses) are bound to be incomparably more far reaching and durable.

Conclusion

Having painted this somewhat pessimistic (or optimistic - depending on one's allegiances) picture about the possible consequences of communication satellites for the Third World, I feel the need to refute some misconceptions that might arise concerning my perception of the relationship of technology to development.

While technology is never neutral, "progress" and "development", in what-soever way we may interpret them (except in the purely spiritual) are also never possible without it!

It is technology, i.e., the organised use of tools for overcoming the constraints of nature, that has propelled the human race from the earliest times. The axe and the bow and arrow were the technologies of the hunting phase. The plough enabled the human race to settle down and develop an organised community life, culture, philosophy and religion. The stirrup, the wheel and the sail gave isolated communities mobility, extended their horizons and welded them into societies and nations. Similarly - the printing press, gun powder, the mariner's compass, the steam engine, the spinning jenny, the internal combustion engine, etc., etc., down to the nuclear reactor and the silicon chip - it was technology that brought about the most fundamental changes in the way human beings related to their environment, even to the extent of eroding and transforming fundamental religious values and beliefs.

No social organisation or power in history has yet thwarted, for any considerable length of time, the march of technology. The Luddites tried to do it in the 18th century. But they went into oblivion and the machines they broke remained! Mahatma Gandhi and Mao Tse Tung tried to do it in the 20th century, but shortly after their death, the march of technology within their societies was resumed with added vigour!

And there has been no technology that has not had negative consequences. The primitive axe must have been used for killing the cave man next door as well as to fell the over-hanging tree for fuel. A Roman Emperor is said to have prohibited the use of water power for turning wheels used for grinding corn on the ground that it would keep the slaves idle! Motor cars cause a great deal of environmental pollution. The jet engine has resulted in the loss of thousands of lives. Every year hundreds of people die of electrocution. Similarly, the communication satellites will bring in its wake its own negative results.

But in none of those instances would anyone suggest the obliteration of the technology in question because of its negative consequences.

The thrust of this paper is not that we should reject communication satellites, and much less that we should wage war against technology. I have argued that the assumptions underlying the proposal to use communication satellites in the Third World are wrong, that satellites cannot provide the solutions to problems which are primarily political, economic and sociological and that if satellites are used as an alternative to painful structural reforms, they are more likely to consolidate and perpetuate those conditions which in the first place produced the problems.

In the absence of such structural reforms, both internationally and nationally (as set out in the programme for an NIEO and NIIO), satellites will most certainly benefit and strengthen the dominant interests, making the solutions even more difficult of attainment.

Technology should be put at the service of all of the human race. But in histroy technology has been used mostly by the dominant powers for extending and perpetuating their hegemony. A case in point is the way railway networks, telephone lines and airline traffic developed in the Third World. Indeed, communication satellites have an important role to play, more important perhaps than the steam engine in the industrial revolution. But we must ensure that the societal, economic and political mechanisms that will guarantee that the new technology will not deepen global inequalities, are also simultaneously in place.

Whenever in history a dramatic development in technology was not matched by a corresponding re-arrangement in power relationships, it ceased to be a liberating force and was transformed into an instrument of oppression.

The more powerful the technology and the more pervasive its capacity for influencing individual lives and transforming the character of whole cultures and societies, the greater the need for social control and democratic accountability.

We cannot afford to leave the direction and application of such technologies in the hands of entities whose social and moral accountability is constrained by the needs of private profit. Throughout history, it has been the failure to match technological progress with social accountability that has aggravated inequalities, deepened oppression and produced enormous social violence.

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10 ibid, p. 8

11 ibid, p. 11

12 "Some questions about television satellites" by Wilbur Schramm in "Satellite Communications and Christian Mission", p. 45, published by IMMI, Kristiansand, Norway, 1979

13 "PEACESAT PROJECT", Reports 1, 2 & 3, published by University of Hawaii

14 "Television Comes to Village - an evaluation of SITE" by Binod Agrawal, published by LSRO, Bangalore 1978

15 "Education for Indonesia via the Palapa Satellite", by Sheldon and Linda Gilberg in Satellite Communications, May 1978

16 "ARABSAT" by Dr. Ali Al-Mashat, Director-General, Arabsat, published in "Educational Broadcasting International", March 1980

17 "UPLINK", the newsletter of the Rural Satellite Programm, funded by USAID, June 1981, p. 5

18 ibid, p. 6

19 "Appropriateness of Satellite Communications for the Third World" by John Mitchell in Media Asia, Vol. 5, No. 2, p. 101

20 ibid, p. 102

21 The two best published summaries on the SITE research findings are by anthropologist Binod Agrawal of the Space Applications Centre, Ahmedabad, vide "Satellite Instructional Television Experiment", Binod Agrawal, published by LSRO, October 1978. Also "SITE Social Evaluation: Results, Experiences and Implications", Binod Agrawal, published by LSRO, 1981. At pages 65-68 of the latter publication, Agrawal gives a list of some 28 resource publications which will be of interest to serious researchers. The "Journal of Communication", Vol. 29, No. 4, also has a section devoted to summaries of some of the research findings. Bella Mody, writes a competent piece "Lessons from the Indian Satellite Experiment" in the Educational Broadcasting International of September 1978, pages 117-120. Pro. K.E. Eapen has also written fairly extensively on this subject, vide his "Social Impacts of Television on Indian Villages: Two Case Studies", published in "Institutional Exploration in Communication Technology", Honolulu, East-West Center, 1978. Also his "The Cultural Component of SITE" in the Journal of Communication, Vol. 29, No. 4, pp. 106-113. For the planning stage of SITE read Prof. Yash Pal "Some Experiences in Preparing for a Satellite Television Experiment for Rural India" in "Proceedings of the Royal Society London", 1975, pp. 437-445. The most comprehensive interdisciplinary overview of the SITE proposal, written before the experi-

ment was completed and setting out its planning history and conceptual range is UNESCO publication No. 78 on Mass Communication titled: "Planning for Satellite Broadcasting" by Romesh Chander and Kiran Karuik

22 vide - "SITE Social Evaluation", Binod Agrawal, summary published by LSRO, 1981

23 ibid.

24 ibid.

25 vide - "Impact of SITE on Primary School Children" by Srehalata Shukla in Journal of Communication, Vo. 29, No. 4, p. 104

26 The inconclusiveness of the data from SITE does not seem to have deterred India's programme to develop its own domestic satellite capability. For a technological evaluation of the INDSAT proposal, written before the SITE experiment was started, read "The Social Use of India's TV Satellite" by Alexander Melzer, a doctoral thesis published by the Center for Economic Research, Swiss Federal Institute of Technology

27 For a carping critique of the current tendency to consider communication satellites as a panacea for Third World development problems vide chapters 6 and 7 of "Beyond Babel" by Brenda Maddex, published by Andre Deutch

28 p. 10 in "New Communication Technologies and the Development World", Arthur Clarke, 1981

29 Herbert Schiller, "Mass Communication and the American Empire", 1969; "The Mind Managers", 1973; "Communication and Cultural Domination", 1976, James Halloran, "Mass Media and Society", 1974

ADVERTISING AND THE CREATION OF GLOBAL MARKETS: THE ROLE OF THE NEW COMMUNICATION TECHNOLOGIES

NOREENE JANUS

Introduction

Information plays a central role in the expansion and consolidation of the transnational corporate system as a whole. In recent years the development of a broad range of highly sophisticated and efficient information technologies provide corporate users with a qualitative advance in the fluidity of international flows of vital information

The rapid development of telematics and the creation of giant data processing, storage, and retrieval networks serve the information needs of primarily military establishments and private sector clients. These information networks have become the central nervous systems of transnational corporations, facilitating the optimization of their profits through efficient and synchronous global decision-making, timely investments, and appropriate research and development activities.

The centralized and transnational character of these global information systems has serious implications for the world political and economic order - implications which have already begun to cause serious international disputes. The major source of conflict is that access to and control over these technologies has become decisive in industrial administration and production and national economic and military strength allowing "information rich" countries increased power vis-à-vis the so-called "information-poor".

Discussions of the most important international issues have emphasized that while productivity increase in some of their informatized industries enhance the competitive position of the advanced industrialized countries on the world market, the information-poor face stagnating employment, productivity and growth levels and a deteriorating position in the world market.

Industrial production using information technologies in advanced economies is resulting in a new international division of labour in which the traditional industries are losing comparative advantages to cheap labour.

Furthermore, these countries are increasingly alarmed that the use of remote satellites and other forms of transborder flows threaten their national sovereignty. The important economic implications of the new information technologies and the international scope of the applications suggest that the issues must be analyzed within the context of larger trends in the world political and econimic order such as the tendency towards the accumulation of transnational capital and the progressive weakening of state power.

The principal question becomes: What role do these new information technologies play in the expansion of the transnational system as a whole and how do they help to break down barrieres posed by national sovereignty?

The answers to these questions tend to stress the role of information technology in only some specific types of corporate communication: administration, sales, investments, and the monitoring of raw materials, market conditions, and competitor's activities. There has been surprisingly little attention paid to the use of these new technologies for corporate marketing communications in the expansion of world consumer markets.

This lack is surprising, given that the survival of the transnational system depends on the perpetual creation of demand on a global scale. Recent technological advances in video systems cable television and

teletex linked to telecommunications networks (which will be refered to collectively as the "new communication technologies" in this paper) are providing the transnational corporation with new ways to reach and expand world markets through advertising.

There have been important changes in the global advertiser's ability to reach world markets, the relationship between advertising and the mass media, and, perhaps most important, the ability of sovereign states to control their own media systems. Who will control these broadcast channels has become a central issue in many international disputes about the launching of communication satellites. For example, what will the role of the advertisers be and how commercial will the system be? To understand what is at stake, and how the new communication technologies are changing the organization of advertising one must look briefly at the two rather distinct historical periods of transnational advertising.

Historically, it may be seen that the transnationalization of U.S. manufacturing preceded the international expansion of U.S. marketing. The first big wave of expanding manufacturing firms, during the period from roughly 1945 to 1960, opened their overseas offices before the marketing and communication systems had been formed into coordinated international marketing obstacles. They generally contracted a seperate local advertising agency in each foreign market where their products were produced or distributed and managed them all from their U.S. headquarters. They suffered from a lack of control over their international image, variation in the quality of the advertising contents, accounting problems associated with multiple agency relationships, and diverse pricing, and audience/media research methods. In short, the means for implementing a coordinated internatioanl advertising strategy were unavailable at that time.

Stage one: The transnationalization of advertising[1]

During the 1960s and early 1970s, U.S. advertising agencies set into place an extensive network of offices in Europe, Canada, Latin America, and Asia which forms the basis of transnational advertising today. During roughly the same time period, television became a mass medium in nearly all the most important consumer markets of the world.

Together, the formation of international networks of Madison Avenue advertising agencies and the penetration of television to the households in major consumer markets provided expanding corporations with the necessary communication infrastructure to carry out their global advertising. They were now able to achieve control over their

goba: image, to coordinate the campaigns, to reduce costs, and to obtain centralized advertising kow-how from markets all over the world.

In addition, international communication and advertising networks made the "golabal campaign" possible - one standard message designed at company he: dquarters and transmitted to all the countries where the product is made or distributed. Since the concept of the global campaign has the appeal of increased efficiency and reduced costs, many major transnational brands and firms, including Revlon, Campbell, Marlboro, Union Carbide, Coca Cola, and Esso have, at some period during their histories, used the global campaign technique successfully. With television, these advertisers could develop their global campaigns around internationally recognized visual symbols to overcome the major obstacles posed by language diversity and illiteracy.

Although the first stage of transnational advertising meant a qualitative change in the organization of global advertising, there were still significant problems facing expanding firms as they sought access to the worlds's consumer markets: (1) Insufficient and imprecise channels of communication and feedback for advertising to specific target populations, due to the underdeveloped state of advertising know-how and communication technology, and (2) national political control over mass media systems in foreign markets limiting advertising access to broadcast channels or limiting the range of product types permitted and media time and space available.

The second major stage in the history of transnational advertising - which begins with the development and use of new communication technologies - is characterized by important advances in overcoming these problems.

Stage Two: Communication Technologies Applied to Transnational Advertising

The second stage of transnational advertising is marked by the use of communication technologies to expand global markets and begins in the late 1970s and early 1980s. Although this stage is just beginning to take shape, it is clear that there will be major changes in two areas: increased accuracy in the production and distribution and feedback systems of advertising, and increased advertiser access to the broadcast systems in foreign countries. Each of these types of changes will be discussed below.

Increased Accuracy in the Production and Distribution of Advertising

The new communication technologies are changing the way that advertising is being created and distributed as well as how audience and media research takes place. Perhaps most important, significant changes are taking place in the way that markets are segmented and specific sectors of the population are reached. While most of these changes have just begun to affect the way advertising is carried out inside the U.S., they indicate probable trends in the organization of international advertising.

1. Advertising Production. Most advertising agencies rely on electronic data processing systems for such routine activities as accounting, inventory, media billing, time summaries, and clien profitability profiles and forecasts. Now, however, they have also begun to experiment in even what are known as the "creative" areas. For example, computers are now being used to write some types of routine contents such as real estate advertising. The characteristics of the product are fed into the computer which selects the most important of these and turns out the finished copy. These uses of communication technologies in the production of advertising are still in the experimental stages. They are, however, important indicators of future developments that will help automate other areas of advertising production and link these to electronic distribution systems.

2. Advertising Distribution. In the past, national advertisers in the U.S. have relied on slow and inefficient mechanisms to distribute their advertising campaigns nationally. They have had to edit each spot television announcement separately, and distribute them individually to the television stations in the various regional markets of U.S. using national mail services or private shippers. In 1979, John Blair and Co. satellite distribution systems began a service which beams advertising spots to Western Union Westar I satellite[2]. These spot annouuncements are then picked up by earth stations in the receiving cities and taped for airing in their regular time schedules. In this way, up-to-the-minute commercial schedules are inserted in syndicated series faster and cheaper than by traditional transport systems. Furthermore, the advertiser may monitor the transmission of the spot announcements. This system, a joint project of Ogilvy and Mather advertising agency, General Foods, and Blair, provides national advertisers with distribution efficiency, instant feedback, and lower costs[3]. It will be especiaily useful for international advertising campaigns.

3. Media Ratings and Audience Measures. Media rating and audo-research techniques have always been speculative and rather clumsy at best. A major problem for advertisers using the new communication

technologies is that no satisfactory method has yet been developed for determining their audience ratings. Potentially, however, the new technologies offer new ratings systems with greatly increased accuracy. Interactive cable television, for example, has been used experimentally, linked to telephone lines and computers to record the media viewing behavior of audiences in the home while another part of the system is installed in the supermarket to record the product purchases made by the viewer. In this manner, viewing patterns may, for the first time, be correlated with product purchase data. With such a system, traditional gross media ratings may become obsolete.

The significance of such computerized media and viewer ratings is that they allow the advertiser to track the individual consumer, providing the information required to produce inividual or personalized advertising messages. To complete the system, the new communication technologies also offers the means by which such personalized advertising messages may reach the well-defined specific markets that are vitally important to advertisers.

4. Market segmentation. The new communication technologies will allow advertisers greater accuracy in defining and reaching smaller more specific segments of global markets[4]. The new video technologies - videocassettes and videodiscs - play an important role in their strategies to reach individual housholds or consumers with what has been called "de-massified" or "one-on-one" advertising. But the real breakthrough in reaching these individual markets has come through cable television. With the increased number of available channels provided by cable television, specialized programming reaches smaller more specific audiences. This makes it economically feasible, for a tennisball manufacturer, for example, to advertise on a tennis programm which would reach the small limited but highly desireable market with no waste. Advertisers may also use an entire cable channel to promote one specific product category. In the state of Massachusetts the J. Walter Thompson advertising agency, one of the world's largest, is carrying out a cable "narrowcasting" experiment which involves the use of several local cable channels for advertising on an all-day basis. The viewers choose the channel according to the type of product they are interested in purchasing. Audiences are limited in size - estimated to be no more than 0.5 per cent of the total viewing audience at any given time - but because they are those who are "ready to buy" they are very valuable to advertisers. Both cable operators and the advertising agency are using the experiment to learn about narrow, highly targeted broadcasting and the effectiveness of longer advertising formats. The convergence of two powerfull forces - more information on media and audiences and the availability of more media channels - is causing advert to insist that every medium be thought of as a rifle rather than as a shotgun[5].

5. Media Costs. Media costs have risen spectacularly in the U.S. Europe and the rapidly expanding markets of the Third World. A study of media cost increases in selected countries has shown that the print media in Saudi Arabia, for example, have increased in cost more than six times the general inflation rates for the year 1980 to 1981. In Japan television rates have increased five times the general inflation rate of the economy. And in Belgium, Spain, and Finland the study found that media rate increases were 50 to 100 per cent higher than those expected for inflation. Since media costs are traditionally related to the number of people reached by the channel and the number of channels available the new technologies with the ability to reach small well-defined audiences through virtually unlimited channels offer substantive cost reductions to the advertisers. A thirty second advertisement on one of the approximately fifty U.S. national cable systems costs about $ 500 while the three major networks charge an average of $ 70,000 for thirty seconds on prime time television.

Videodiscs and videocassettes have proven very cost efficient for the production of sales catalogues of the large retail stores. To solve the problem of prohibitively high postage rates for the heavy paper-printed catalogues, Sear's, for example, has put its entire 1981 mail order catalogue on videodisc. The disc is inexpensive to produce and postage costs are minimal. General Motors is also beginning to use discs for some types of advertising.

Advertising access to these new communication technologies has, thus, resulted in increased efficiencies in reaching targeted segments of the market at reduced costs with instant feedback on the impact of their campaigns. This will enhance the competitive position of transnational firms producing consume products. It will also help the advertising agencies themselves to maintain their competitive lead over local advertising agencies in each market.

But the major impact of the new communication technologies on transnational expansion of consumer markets is in the increased control over broadcasting in foreign markets. Here they have proved helpful in reversing many aspects of the thirty year long relationship between advertisers and the media.

Increased Advertiser Access to Broadcast Media

Ultimate control over the mass media has traditionally been in the hands of the State. In privately owned systems the power of the State is expressed through legislation limiting the types and amounts of advertising allowed while in State owned systems this control extends

to include sources of financing. Access to these prized marketing channels has been the subject of constant battle as advertisers pressure for relaxation of existing legislation.

The advertisers may ultimately win the battle: the new communication technologies are significantly less-regulated than traditional broadcasting[7]. This relative lack of regulation of the new technologies has important implications for the transnational expansion, both inside the U.S. and globally.

1. Access to State owned Broadcasting. In those countries where broadcasting is still largely State supported, advertising has been completely banned or strictly limited. Expanding corporations and their advertising agencies have engaged in long struggles to break down these barriers. Broadcasting has been a clear example of the conflict between expanding transnational capital and local states struggling to preserve their national sovereignty. The new communication technologies offer the global firms the means to circumvent existing State control over broadcasting.

Videocassettes are widely used by global advertisers. for example, to penetrate Sweden where broadcast advertising is limited to a few minutes a day. The major breakthrough, however, has come with the use of satellites.

Satellite receiving areas or "footprints" are larger than the geographical limits of most countries making it difficult to subject satellite transmissions to the same sets of legislation that control national mass media. Diverse sets of legislation within the same receiving areas has led to various conflicts in the planned launching of several European national and regional satellites. The issue of whether to allow access by advertisers has become a major source of conflict between countries.[8] Satellites from countries allowing broadcast advertising plan to beam commercial broadcasting into countries where such types of contents are strictly limited.

Successful continent-wide advertising campaigns require that advertisers be allowed unrestricted access to broadcast systems in all receiving countries. Major agencies predict that there will be a big increase in "multinational" campaigns once the satellites are in full operation. The success of the new "Eurobrands" depend on access to Europe-wide advertising channels. Direct mail campaigns by satellite, for example, will be possible for all of Europe once there is an international telephone exchange available.

Over time, most state supported systems have relaxed their regulations limiting the sale of advertising. The threat of foreign-oriented commercial broadcast transmissions has recently led Belgium and the Netherlands to allow more time for advertising. Although there are several ways in which national governments can still exercise their control over the airwaves (limiting the licenses for purchase of Direct Broadcast Satellite receiving equipment, for example) the trend is clear: the new technologies are helping the expanding transnational system to break down remaining State control over broadcasting.

As the director of international advertising of the Polaroid Corporation predicts:

> "To achieve maximum efficiency the local national TVs. most of which are run by the governments, will have to change somewhere along the line. They'll have to change not only the amount of commercial time but how it's presented; they'll have to change everything in order to compete against the independents and the satellites[9]."

And the chairman of Unilever, Europe's largest advertiser, predicts:

> "National boundaries could, as far as television is concerned, disappear. Reception areas of the satellite might become the new marketing areas[10]."

2. Range of Products and Services Allowed. On traditional over-the-air broadcast transmissions the trend is toward greater regulation limiting the types of products and services that may be advertised. Among the heavily restricted products are drugs and medicines, tobacco, alcohol, and products directed toward children. Other restrictions cover the types of claims made, the national language used, etc. The new forms of communication technologies will not be subject to the same restrictions. A far broader range of products and services will be accepted reflecting the new trend toward "de-regulation" and the difficulties enforcing these restrictions on different forms of media. Oracle, the Britisch ITV network's home video system, will allow the advertising of, among other products and services prohibited on traditional television broadcasting, gambling operations. This decision is justified by the fact that the teletext viewer must call up the data and therefore cannot be unwillingly exposed to the commercials. In the U.S., the use of cable television systems for pornography indicates the unrestricted approach being taken with the new communication technologies.

3. Time and Space Available for Advertising. The most troublesome limitation facing broadcast advertisers is that concerning the time available for commercials. While there are also space limitations in print media the restriction is primarily applied to broadcasting due to limited frequency space for channels. These advertising time restrictions vary according to the hour, the medium, and the country.

In virtually all of the new communication technologies, no time limit to advertising will be applied. Commercials of extended lenght have led to an entirely new concept of advertising called "informercials". No longer will the 30 or 60 second time frame limit what advertisers can convey to their audiences. An entire videocassette or disc is available for commercial messages. As mentioned above, entire channels of cable television have been turned over to advertisers. Other cable channels transmitting traditional types of content - sports, movies, sereis, etc. - often run commercials of from 5 to 8 minutes. In a survey of advertisers using cable television as an advertising medium, it was found that one fourth of the respondents use commercials longer than the traditional 60 seconds[11]. American Express and L'Oréal are two major firms using cable television to create longer "informercial" advertising. For the advertiser a major advantage of cable television is that the FCC does not regulate advertising time.

4. Advertiser Control Over Media Contents. At the same time as advertisers are using the new unregulated communication technologies to broadcast longer advertisements about a broader range of products and services, they are moving to take control over the general field of media contents. They have now entered the production of what are called "advertiser-created programms" which represents a new stage in the long relation between advertising and the mass media. Instead of limiting themselves to exerting pressure on the production process traditionally in the hands of independent productions houses, networks, and local stations, the advertisers now produce the contents for the new communication technologies themselves. Videocassettes, discs, and cable channels are increasingly being filled with content entirely produced by advertisers. The only restriction facing this form of broadcast advertising is viewer resistance[12].

To avoid viewer rejection of these all-advertising programs, large advertisers are beginning to create media contents which complement the products and services offered[13]. A Ford automobile dealer, for example, may prepare a videocassette or disc on travel tips and landmarks that it would offer free to customers who test drive one of the new automobiles. Kraft Foods might similarly produce a four-volume cassette or disc providing special Christmas recipes which include the use of their food products. Or United Airlines might make a "video

brochure" about the beauty of Hawaii, its history and culture, that would also include United's fares and schedules.

Similarly, to prevent viewers from erasing or skipping over advertising messages in these "advertiser-created programs" programing is being developed with commercials so skilfully intertwined with other information that they cannot be removed or skipped over[14].

5. Advertising Durability. One of the factors which makes traditional broadcast advertising so expensive for advertisers is that costs are calculated on the basis of announcements which run only once. Each commercial announcement gains access to the viewer only at the time it is broadcast. The new communication technologies have begun to change the concept of advertising as a "single-exposure" perishable item. The president of a large transnational advertising agency stressed the durable quality of videocassettes and discs using the important children's market as an example. He suggested that "a company like Sear's - already identified commercially with Winnie the Pooh - could publish a series of videodiscs featuring Pooh characters in modern episodes. These episodes would require no intrusive Sear's commercials to identify the sponsor and they could be enjoyed again and again like a set of children's books"[15].

Clearly, the coming era of communications by satellite, cable and computer will be charcterized not by increased viewer control and participation in the mass media but by increased persuasion to consume. The new communication technologies will change the way the entire process of advertising is carried out. The significance of the electronic handling of production, distrubution and feedback systems is that they form part of a large system that will be able to monitor individual consumers, determine the lifestyle and consumption habits, design personalized advertising and then deliver it via individual channels. It must be emphasized that the versatility of the advertising process has increased significantly giving the advertiser unlimited options for contents, distribution, and market size.

The new communication technologies offer access to specific segments of the market from one person to an entire continent. While these developments are unfolding presently inside the United States they have begun to shape the way that transnational advertisers view their global marketing strategies. As an advertising journal predicts,

> "World commercials" may be coming in TV advertising as satellites open new markets, while elsewhere the new technologies and computers could combine to produce ad messages that would address

consumers individually in the tone and manner they prefer"[16].

The Implications of Transnational Advertising for the Third World

Third World markets are important to transnational advertisers. The local economies are often growing faster than industrialized economies, the middle classes are expanding quickly, and markets have not yet become saturated with consumer goods. The major thrust of transnational expansion has been in the area of consumer goods producers assembling and distributing to overseas markets. And since consumer goods traditionally require the heaviest advertising expenditures, rapid growth in consumer goods manufacturing and distributing industries generally implies a corresponding boom in advertising expenditures. A three to four-fold growth of total national advertising expenditures over a ten year period is common in the Third World countries with rapid development and heavily transnationalized economies such as Taiwan, South Korea, and Singapore[17].

However, the shift of consumption patterns toward transnational products and the creation of a new consumer culture is not always the harmonious process that the advertising industry and the manufacturers would like it to be. Local populations do not always passively accept new products which are often more expensive, of poorer quality and different from locally consumer materials and foods. There is a perpetual confrontation between transnational expansion and local cultures[18]. Product acceptance often requires that manufacturers spend large sums on advertising campaigns produced by the transnational agencies who have had decades of experience in overcoming consumer resistance.

It is still premature to assess the role that the new communication technologies will have in the transnational expanse of global consumer markets. We may use present broadcasting patterns, however, as a good indicator. The mass media in Latin American countries, for example, tend to be more dominated by advertising than media anywhere else in the world. Empirical studies show that magazines, newspapers, and television devote from 30 to 50 per cent of their time or space to advertising[19].

Furthermore, the largest part of this media advertising is purchased by transnational firms to promote their products. In studies of Latin American women's magazines it has been found that more than 60 per cent of the advertising promotes transnational products while for television the figure is 80 per cent[20].

What kinds of products do these global advertisers promote on the mass media systems of the world? Contrary to those who claim that advertising is a useful source of all types of product information, closer look reveals that only some products are advertised: soap, pharmaceuticals, and cosmetics, tobacco, processed foods, and alcoholic beverages are the product groups most heavily advertised. These are also industries which tend to be dominated by transnational capital. The same firms developing the marketing uses of the new communication technologies control the economies of many Third World countries and dominate their mass media systems. Given these facts, it is safe to assume that the new communication technologies, as they spread to other countries of Europe, Asia, Latin America, and the Middle East will be at the service of Kraft, Coco Cola, General Foods, Procto and Gamble, Kodak and Anderson Clayton.

These new communication technologies, while still in the initial stages of household penetration in the major consumer markets of the world, are being rapidly installed. In Latin America, several countries plan to have satellite service within the next few years.

In August of 1980, Colombia announced its decision to put its own satellite into orbit. Brazil and Venezuela have also announced that they will have satellite service over their territories by 1984 or 1985. And Argentina plans an ambitious project using three satellites to cover the whole expansion of its territory[21].

Videocassette recording technology has rapidly made its way into Latin American markets. Sony produces video recording equipment in Brazil for export to other countries within and outside the region. A large number of households in Brazil, Venezuela, and Caiman Island in the Bahamas already have these products. And large areas of many countries, such as Mexico are already wired to receive cable television.

The expansion of transnational capital, the rapid flow of marketing "know-how" from the headquarters of Madison Avenue advertising agencies to their branch offices around the world, the importance of the perpetual creation of demand for consumer products, and the rapid installation of the new communications infrastructure suggest that the new "information age" will also be a "commercial age" at the global level.

The way in which the advertisers plan to use the new communication technologies was clearly revealed when the magazine Advertising World announced a few years ago that,

> A New York programm bounced off satellite can be " published" as a videodisc thousands of miles away in the jungle somewhere within 24 hours and played on any home TV set with a simple attachment[22].

Several important questions arise: What measures can local governments take to protect their citizens from externally original advertising transmitted via satellite? How can legislation keep up with developments in communication technology? How will the transnational corporations use the new technologies to circumvent local government restrictions on the commercial content of broadcasting?

The ansers to these questions will influence the outcome of efforts to create a New International Information and Communication Order and to preserve national sovereignty in the face of the development of the "Global Consumer" and the "Global Shopping Centre".

NOTES

1. For a discussion of the history of the transnational expansion of U.S. advertising agencies see N. Janus, "The Making of the Global Consumer: Transnational Advertising and the Mass Media in Latin America", unpublished Ph. D. dissertation, Stanford University, Department of Communication. 1980.

2. Advertising Age, April 2, 1979, p. 100.

3. Since only one print is needed for satellite transmission, instead of multiple prints sent by mail to each market, the advertiser may reduce costs considerably. Paramount pictures is reported to save $ 500,000 annually with satellite advertising distribution systems (El Nacional-Mexico, August 22, 1981, p. 11)

4. The apparent contradiction between the search for global sized markets and for small localized or individualized markets is discussed in recent theoretical work about the stages of the transnationalization of capital. R. Trajtenberg and R. Vigorit in Economia y Politica en la Fase Transnacional: Algunas Interrogantes (Mexico: ILET, 1982) describe transnationalization as a historical process with an early and a mature stage. While the mature stage may be characterized by increased rationalization of global production and consumption, the early stage, which includes the present, is charcterized by a multiplicity of local markets and a great diversity of production processes developed simultaneously in the various local world markets. These two sizes of markets - global and local - are not contradictory but rather complementary and exist side by side during the early stages of transnationalization.

5. Editorial, Advertising Age, October 13, 1980.

6. M. Hook, "Media Inflation", Advertising World, July 1981, p. 2.

7. In the U.S. there are few restrictions limiting advertiser access to the new communication technologies which reflects in part technological considerations which make regulation more difficult to implement. This attitude must be understood, however as a part of the larger trend toward media de regulation.

8. This conflict over the nature of European Satellites is described in G. Fauconnier, "The 'Enfant Terrible' in European Satellite Projects: Lux-Sat" and H.J. Kleinsteuber "Direct Broadcasting Satellite (DBS) - Policy of the Federal Republic of Germany" by papers presented to the Tenth Annual Telecommunications Policy and Research Conference, Annapolis, Maryland, April, 1982.

9. B.K. Carson, "Polaroid Aims High for Mass Reach in Europe" Advertising World, January 1981, p. 7.

10. D. Chase, "Orr: National Boundaries. Could, as Far as Television is Concerned, Disappear", Advertising Age, October 20, 1980, p. 4.

11. "Survey Finds Cable Still Has Doubters", Advertising Age, November 9, 1981, p. 66.

12. Some advertising agencies feel that the fact that viewers can skip over or erase advertising on the new technologies will encourage the creation of more appealing and more informative advertising as a means to avoid viewer rejection.

13. The creation of media contents that complement the commercial messages they contain is not new; what is new is that the production of these complementary media contents is increasing in the hands of the advertisers themselves rather than production houses or networks.

14. Keith Reinhard, president of Needham, Harper, and Steers advertising agency quoted in "New Media Programming View: 'Video Publishing'", Advertising Age, November 24, 1980, p. 68.

15. "New Media Programming View: 'Video Publishing'" Advertising Age, November 24, 1980, p. 68.

16. Advertising Age, October 20, 1980, p. 2.

17. See N. Janus, "The Making of the Global Consumer: Transnational Advertising and the Mass Media in Latin America" Unpublished Ph. D. Dissertation, Stanford University, Department of Communication, 1980.

18. See N. Janus, "Advertising and the Mass Media: Transnational Link Between Production and Consumption", Media, Culture and Society, Vol. 1981, No. 3, pp. 13-23.

19. Ibid.

20. Ibid.

21. H. Schmucler and Armand Matterart, "America Latina en la Encrucijada Telemática", Mexico: ILET, 1982.

22. Advertising World, October 1978, p. 20.

COLLOQUIUM:

FUTURE CONSEQUENCES OF NEW COMMUNICATION TECHNOLOGIES ON THE POLITICAL AND ECONOMIC RELATIONS AMONG WESTERN INDUSTRIALISED COUNTRIES

(Bonn, 17-19 December 1982)

Agenda

Friday, 17 December, 1982:

Opening session

Welcome address
Dr Ernst J Kerbusch,
Deputy Director, International Department, Friedrich-Ebert-Stiftung (FES)

Key note address
Public Broadcasting - a model for the future?
Mr Richard Becker,
Director General of Deutschlandfunk (nationwide German Radio Broadcast System) and Chairman, FES Forum "Policies and Media"

Introductory remarks
Mr Reinhard Keune,
Head, Mass Media Division, FES

First working session
Satellite systems in the Western World - present state and future development
Mr Bert Cowlan,
Communication Consultant, New York N.Y.

Unispace - a successful forum?
Mrs Lee Love,
Communication Consultant, New York, N.Y.

Second working session
The impact of new communication technologies on the Third World
Prof Herbert J Schiller,
University of California, presently Visiting Professor, University of Paris

Mr Cees J Hamelink,
Institute of Social Studies, Den Haag
The PTTs and the new technologies
Dip.-Ing. Dietrich Elias,
Permanent Secretary, Federal Ministry of Post and Telecommunications, Bonn

Saturday, 18 December, 1982:

Third working session

News and newsfilm agencies in the eighties
Dr Thilo Pohlert,
Chairman of the Excecutive, Deutsche Presseagentur, dpa, Hamburg

Fourth working session

The electronic technologies markets in the eighties - confrontation, cooperation or concentration?
Dip.-Ing. Karl Joseph Frensch,
Director of Marketing, Public Communications Technologies, Siemens AG, Headquarters, Munich

Fifth working session

New technologies and research
Prof James Halloran
University of Leicester, President, International Association for Mass Communication Research

Prof Bernard Blin,
University of Paris II, Coordinator Foreign Affairs, TF 1, Paris

Sunday, 19 December, 1982:

Transnational data flow - a German viewpoint
Mr Dieter Klee,
Director, African Department Deutsche Welle - Voice of Germany

Broadcasting Unions in the future - Sports and News -
Mr Spencer Moore,
Asst. Director, International Relations, Canadian Broadcasting Corporation/CBS

Mr Werner Schneider,
Sports Broadcaster, Zweites Deutsches Fernsehen, ZDF, Düsseldorf

Closing session

Close

PARTICIPANTS

Blin, Prof Bernard
Professeur Université Paris II
Cordinateur Affaires Etrangeres, TF 1

Bransford, Louis A
Vice President
Planning and Development
Public Service Satellite Consortium

Cowlan, Bert
Media Consultant
New York

Cruise O'Brien, Dr Rita
University of Sussex
Institute of Development Studies

Goldberg, Melvin
Vice President
Market Planning
Technology & Social Research
American Broadcast Companies, Inc

Halloran, Prof James
University of Leicester
President IAMCR

Hamada, Prof Junichi
Asst Professor
Institute of Mass Communication Studies
University of Tokyo

Hamelink, Cees J
Institute of Social Studies
Den Haag

Jones, Brennon
Interlink/Press Service New York
Executive Director

Kulakow, Allan M
Director
African Programmes
Academy for Educational Development Inc

Law, Dr Gordon
Office of Technology Assessment
Congress of the US

Lee, George
Asst Director
Extension Department
Memorial University of Newfoundland

Love, Mrs Lee
Media Consultant
New York

Moore, Spencer
Asst Director
International Relations
Canadian Broadcasting Corporation

Moses, Sir Charles
Former Director General Australian Broadcast Corp
Former Secretary General ABU, Vice Chairman AMIC

Mowlana, Dr Hamid
Professor and Director
International Communication Studies
The American University

Osava, C Mario
Inter Press Service
Rio

Paldan, Ms Leena
University of Tampers, Finland
Department of Journalism and Mass Communication

Pause, Germanus
Executive Assistant
Land Commission of New South Wales

Peterson, Neville H
Director
Information Services
University of Sydney

Pezzano, Susana
Inter Press Service
Caracas

Somerlad, Ernest L
Asia Com Consultant
Former Unesco Consultant

Susman, Leonard R
Executive Director
Freedom House
New York

Schiller, Prof Herbert J
University of California
San Diego
presently Visiting Professor at Paris University

Topuz, Hifzi
Chief
Section of Free Flow of Information
Unesco

Speakers (German)

Becker, Richard
Director General of Deutschlandfunk

Elias, Dipl.-Ing. Dietrich
Permanent Secretary
Federal Ministry of Post and Telecommunications

Frensch, Dipl.-Ing. Karl Joseph
Director of Marketing
Public Communications Technologies
Siemens AG

Kerbusch, Dr Ernst J
Deputy Director
International Division, FES

Keune, Reinhard
Head
Mass Media Division, FES

Klee, Dieter
Director
African Department
Deutsche Welle - voice of Germany

Pohlert, Dr Thilo E
dpa, Hamburg
Managing Director and Chief Executive Officer

Schneider, Werner
Sports Broadcaster
Zweites Deutsches Fernsehen
Düsseldorf

Speakers (Foreign)

Blin, Prof Bernard

Cowlan, Bert

Halloran, Prof James

Hamelink, Cees J

Love, Mrs Lee

Moore, Spencer

Schiller, Prof Herbert

Organisers

M Danch, E Ehrlinspiel, G Gerst, R Keune, G Lehrke, W Riehn

Interpreter: Sybille Heyer

Sound Operators: J Bungert, H Schaufler